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GRADUATE

THE UNIVERSITY OF TORONTO ALUMNI MAGAZINE

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JOHN MARTIN

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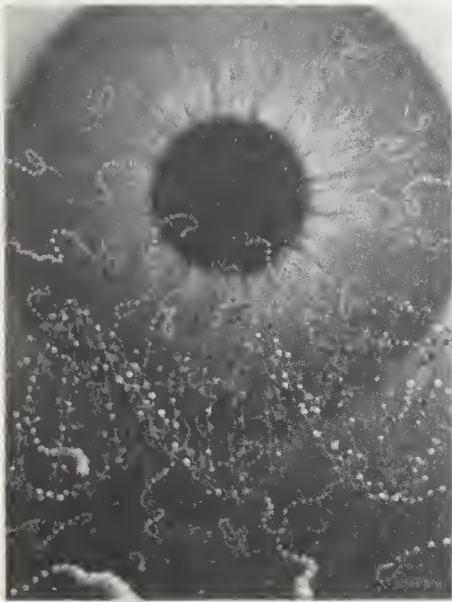
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GRADUATE



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DONALD FORSTER

BY MILTON ISRAEL

DON FORSTER WAS AT HOME IN THE UNIVERSITY OF Toronto. As a student, a professor of economics, and an academic administrator he spent much of his life here, and commitment to its welfare dominated his professional career. University administration can be a risky occupation for an academic, often carrying with it the scepticism and occasional hostility of colleagues. Over time, as he rose in the hierarchy of central administration, recognition and respect came to him on the only terms acceptable in a university, as an accomplished and creative professional in the judgement of his peers.

Don's perception of the University and the role of its leaders was deeply influenced by Claude Bissell. As an administrator, he had no devotion to process and was impatient with jargon and distance. He relied on personal contact and direct involvement to ensure that the University's increasing size and complexity did not isolate the decision-makers from those they were meant to serve. He retained a healthy scepticism about managerial models and recognized with good humour and easy grace the constraints on his ability as a manager to accomplish his goals without the participation and support of his colleagues. The key to his success was the bond of mutual trust which tended to inform his professional relationships. Those who shared administrative responsibilities with him, in departments, faculties and at the centre of the University, knew that Don was prepared to make decisions quickly, take risks when necessary, and could be relied on to carry through any commitment.

Don Forster lived in the whole University. His administrative responsibilities required broad contacts and allowed him to understand and appreciate its unique character, reflected in part in its layers of organization and hierarchy, but more significantly in its extraordinary

nature as a human community. Don thrived on the personal and political life of the University. He enjoyed the collegiality, the competition and struggle, the variety of style and argument addressed to a shared concern. His strength was the reciprocated loyalty and support which made the provost's office the primary guardian and representative of the academic interest in the University.

Don loved to talk about U of T. No bit of gossip or detail was too insignificant to escape his interest. Years after he moved to the president's house in Guelph, he maintained intimate connections with old friends and colleagues who repaid his hospitality with information or insight that allowed him to keep in touch. His concern was professional as well as personal. Toronto was always the provincial university for Don. He was convinced that a thriving U of T was essential for all the universities in the province and for Canada.

He recognized the importance of relations with government and the need to establish a shared understanding of problems and possible solutions, and he was an effective lobbyist in Queen's Park and Ottawa for Guelph, Toronto and the system generally. The personal characteristics and administrative talent that gained him support within the University were appreciated no less by those in government, business

and the community.

Don's public career filled most of his days. In private he preferred quiet dinners with a few friends or an evening working on his vast stamp collection. He filled his home with primitive art, pine furniture, Japanese prints and Satsuma pottery, and he enjoyed living and working in a beautiful environment.

Because of his experience and expertise, Don might have become the spokesman for the scholarly community in Ontario and Canada, so clearly needed in these difficult times. We cannot know exactly what we have lost, but it seems obvious that the loss is great. Don Forster was at the peak of his powers and this university needed a talented leader. It would have been a delight to welcome him home. ■



Milton Israel, director of the Centre for South Asian Studies, knew Don Forster for about 15 years. They were professional associates and personal friends. This appreciation has been reprinted from the University of Toronto Bulletin.

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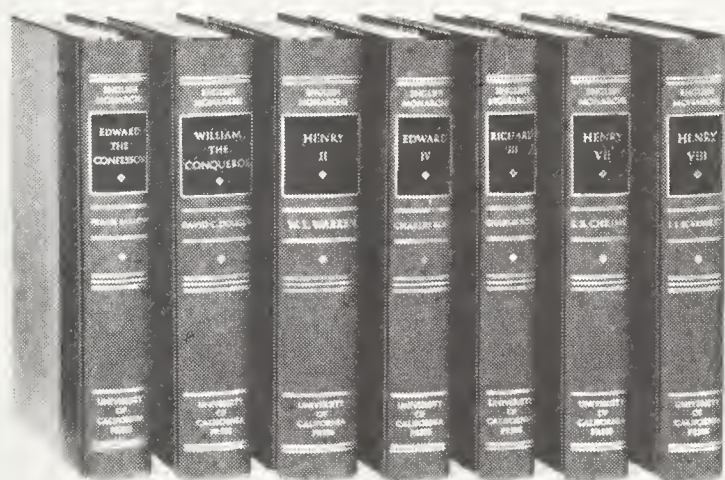
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IMAGES OF THE INFINITESIMAL

BY PAMELA CORNELL

PETER OTTENSMEYER'S UNSUDDEN BREAKTHROUGH REVEALS WHAT HAS NEVER BEEN SEEN BEFORE

The floor creaks. A shadowy figure disappears into the study. Stealthily, the detective follows, then flings open the door. The room is deserted. Careful examination reveals nothing. The detective ponders the puzzle, abstractedly running a fingertip along a bit of ornamental moulding. Suddenly, the wall moves aside, revealing a hidden staircase. The detective ascends, heart pounding with anticipation.

★ ★ ★

ONLY IN FICTION IS THE DETECTIVE LIKELY TO encounter such a dramatic revelation. In real life, the work tends to be painstaking and the progress incremental. It's the same for a scientific investigator. Hunches — when tested — often yield disappointing results. Occasionally, there might be a glimmer of insight. Rarely does the equivalent of a wall move aside, opening up a whole new vista. But that's what happened for Peter Ottensmeyer, a professor in U of T's Department of Medical Biophysics at Princess Margaret Hospital.

"Breakthrough" is a word researchers use with caution. They know that to portray the results of their investigations in sensational terms is to risk alienating colleagues and misleading the public. Mindful of that caveat, Professor Ottensmeyer nonetheless describes the achievement of his research group as "an unsudden breakthrough, signalling a new age in structural analysis through electron microscopy".

Just as the telescope has enabled us to explore the far reaches of the universe, the electron microscope has expanded our view of the world to include the other extreme — the microcosm. In biology, this has meant the power to observe tiny viruses and the substructure of cells. The result has been a better understanding of the most fundamental mechanisms of life.

Now, 45 years after North America's first electron microscope was built at the University of Toronto, another U of T researcher has succeeded in transforming the capabilities of an already remarkable technology. By changing operating techniques, together with designing a special filter and incorporating it into a conventional transmission electron microscope, Peter Ottens-

meyer has produced a prototype machine capable of revealing — with startling clarity — sites far smaller than had ever been viewed before. Moreover, in addition to offering the investigator an image of physical structure, the instrument can provide a highly detailed chemical map which indicates the positioning of the various elements within that structure.

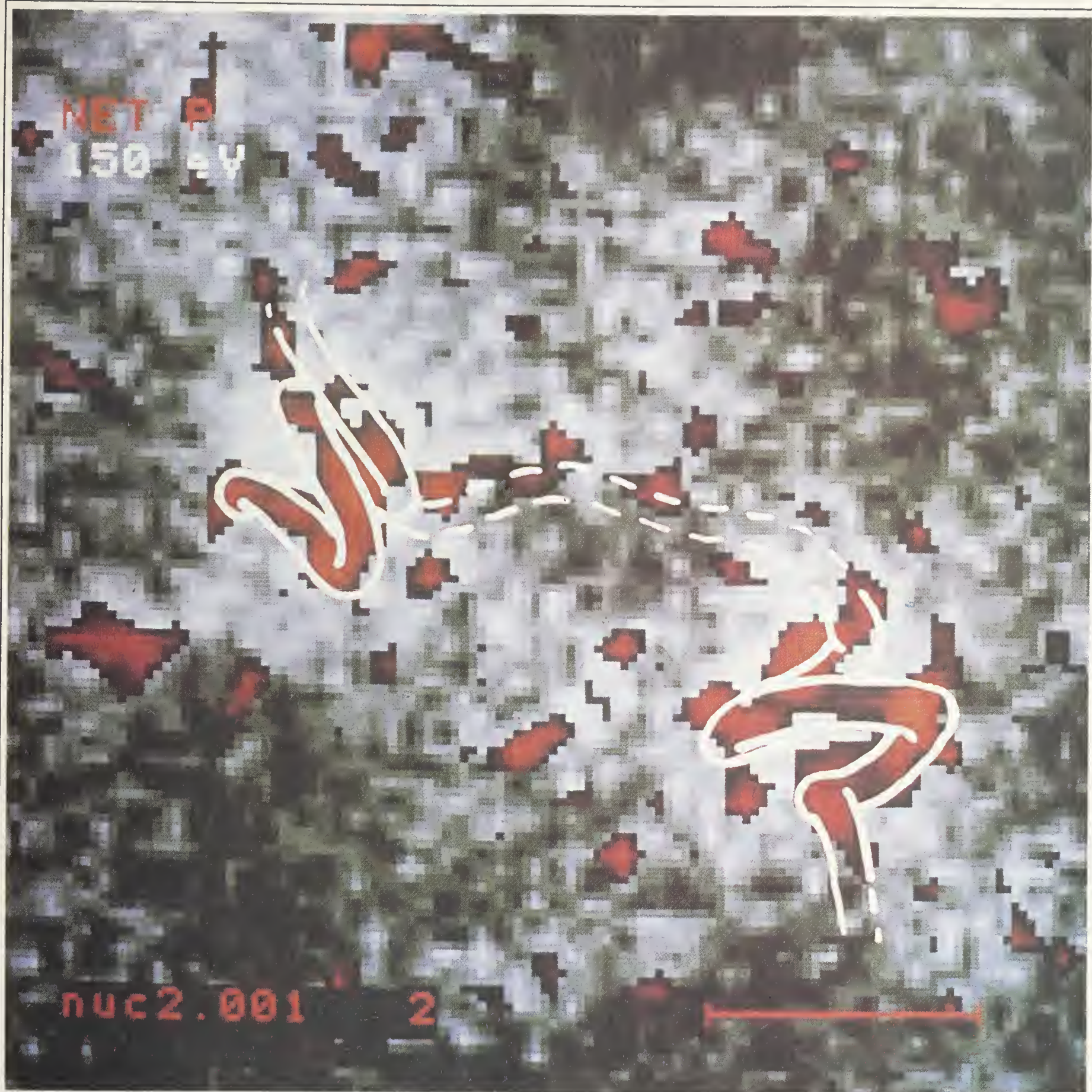
Having access to this new information can mean revising old ways of thinking about precisely what is happening at the level of molecules and atoms. For example, Ottensmeyer and his colleagues have been looking at preliminary steps in the transformation of cartilage into bone. On the basis of earlier investigations, scientists had concluded that a linkage of the elements calcium and phosphorus was the starting point. What Ottensmeyer's group has discovered is that the partnership with phosphorus is more like a second marriage for calcium. Because researchers in the group have been able to view significantly smaller sites, they have observed the calcification process at a more fundamental stage — a stage at which calcium is paired, not with phosphorus, but with sulphur.

"When we follow the normal sequence of mineralization," says Ottensmeyer, "we can now see earlier events which can be mapped out chemically in exquisite detail. In pathological cases, we may see additional steps, or steps that are missed.

"One of our collaborative studies is of bone formation in rats who have been fed aluminum. The purpose is to investigate bone mineralization problems in kidney patients on dialysis, where aluminum is used to help purify the blood."

Ottensmeyer calls his technique electron spectroscopic imaging and describes it as "an analytical tool of rapier-like fineness". So powerful is his method, that every specimen — from biological tissue section to metal alloy — has given a new or definitive result.

Some 25 years ago, enormous excitement was generated when scientists Francis Crick and James Watson described the helical configuration of the DNA (deoxyribonucleic acid) molecule. Found in chromosomes, and viruses, DNA carries the code by which inherited charac-



Installed in a conventional transmission electron microscope, Ottensmeyer's electron energy filter makes it possible to obtain — at high resolution — an image that combines information both on chemical distribution and on physical structure. This computer display of an electron spectroscopic image shows (in grey tones) two of the many nucleosomes that contribute to the "string-of-pearls" effect in a strand of bulk chromatin isolated from calf thymus. Superimposed on this is the net phosphorus distribution (in shades of red). Since phosphorus in these particles is predominantly in DNA, the phosphorus distribution indicates the helical path of the DNA (traced in white).



PAUL ORENSTEIN

teristics are handed down from generation to generation. Subsequent investigation by a scientist named Aaron Klug has resulted in a structural model suggesting that the functioning DNA protein complex inside the cell takes the form of a "superhelix" — a single coil made up of two smaller coils twining round each other. The details of this model are now being challenged by Ottensmeyer's electron spectroscopic images.

By using this ultra-sensitive technique, the investigator can follow the path of the 300 or so phosphorus atoms in the DNA of a single nucleosome (a tiny pearl-like structure of the chromosome). The newly indicated DNA model is organized slightly differently from the generally accepted one. Also, there is a difference in the "pitch" of the spiral. So another step has been taken towards understanding the controlling mechanism that brings about active transcription of those "master molecules" of living organisms.

Applications of the specially adapted microscope are as diverse as the scientists who want to use it. While pathologists at Princess Margaret prize it as an accessory in the battle against cancer, U of T botany pro-

fessor Michele Heath sees it as a potential weapon in the war against starvation through famine in developing countries. A plant pathologist, she is using Ottensmeyer's microscope to take a closer look at rust fungus infections that attack food plants.

With almost a third of the world's crops being lost annually to plant diseases, there is tremendous impetus to breed plant strains whose resistance will not eventually be overcome by their ever-adaptable attackers. Unfortunately, rust fungi have a rapid mutation rate so it's only a matter of about five years before, in response to the pressure to survive, the fungi overcome the plants' bred-in resistance.

Although there are thousands of micro-organisms known to cause diseases in higher plants, each plant species is host only to a few and is resistant to all the rest. When infected with an incompatible rust fungus, a plant seems to generate a protective layer of silicon compound at the site of the infection. A compatible fungus might initially trigger such a response but would then somehow manage to suppress it. By using electron spectroscopic imaging to examine those cell wall deposits on

a molecular basis, Heath hopes to find the key to producing a durable form of immunity.

As word of the marvellous microscope got around, scientists from all over the world began flooding Ottensmeyer with requests to apply his technology to their respective studies. A physicist from the Massachusetts Institute of Technology has been using it to examine impurities vital to the function of semiconductors. A biochemist from Israel has been looking at the structure of the ribosome — the “workbench” on which proteins are made in living organisms. From Japan, a metallurgist has collaborated with the Toronto facility to study imperfections in metal crystals, with a view to determining how metal alloys can be made stronger. A McMaster University researcher is using the microscope to study the distribution of calcium in the muscle tissue of the uterus, to understand better the role calcium plays in muscle contraction.

“It’s very satisfying,” says Ottensmeyer. “Sometimes my lab feels like a little United Nations.”

Capable of boundless intellectual exuberance, Ottensmeyer tends to maintain a controlled demeanour, but this new research tool has him fairly jumping up and down with delight. Still, he can always muster enough serenity to take a lay person patiently step-by-step through all the technological complexities.

★ ★ ★

Microscopes, whether they be the high school lab variety or the more powerful electron type, do not merely magnify. Equally important is their resolving power — the ability to distinguish between two points in an object as being separate from one another. The human eye has a resolving power of one one-hundredth of a centimetre. That is, it can only distinguish points that are at least that far apart. If two points are closer than that, they will be seen as a single point. They will not be resolved with the unaided eye.

In electron microscopy, resolving power is expressed in angstroms. The period marking the end of this sentence measures about five million angstroms across. One angstrom represents the diameter of a hydrogen molecule, which measures one one-hundred-millionth of a centimetre across and is the smallest of all molecules.

The best light microscope has a resolving power of 2,000 angstroms, which is 500 times greater than the eye. The best electron microscope has a resolving power of only two angstroms — 500,000 times greater than the eye. Electron microscopes have this greater resolving power because they use electrons instead of light to produce an image, and electrons have shorter wavelengths than visible light. Inside the electron microscope, a series of magnetic electron lenses make the rays converge on the specimen. Focusing is accomplished by adjusting the currents in the magnetic coils, thus varying the focal length of the lenses.

Specimens examined in a transmission electron microscope must be very thin — no more than a few angstroms thick — so that a beam of electrons can penetrate them. The delicate specimen slices are floated off the slicer (called an ultra microtome) onto water and are picked up on a thin copper grid, three millimetres across. As the electrons pass through the thin specimen, they interact with the matter and carry forward an image of the ob-

ject in the electron beam. The electron beam then passes through the electromagnetic focusing system which produces a much magnified image. This image is received on a fluorescent screen for viewing or can be trained onto a photographic plate to produce a permanent record.

During the physical interaction of the electrons with matter, the electrons excite the molecules of the matter and, in the process, lose energy. As a result, the energy-reduced electrons would emerge through the specimen at varying wavelengths, producing fuzzy images. To improve contrast among their various parts, the specimens are stained with heavy metals (osmium, tungsten, uranium or lead) because electrons lose little energy when interacting with heavy atoms.

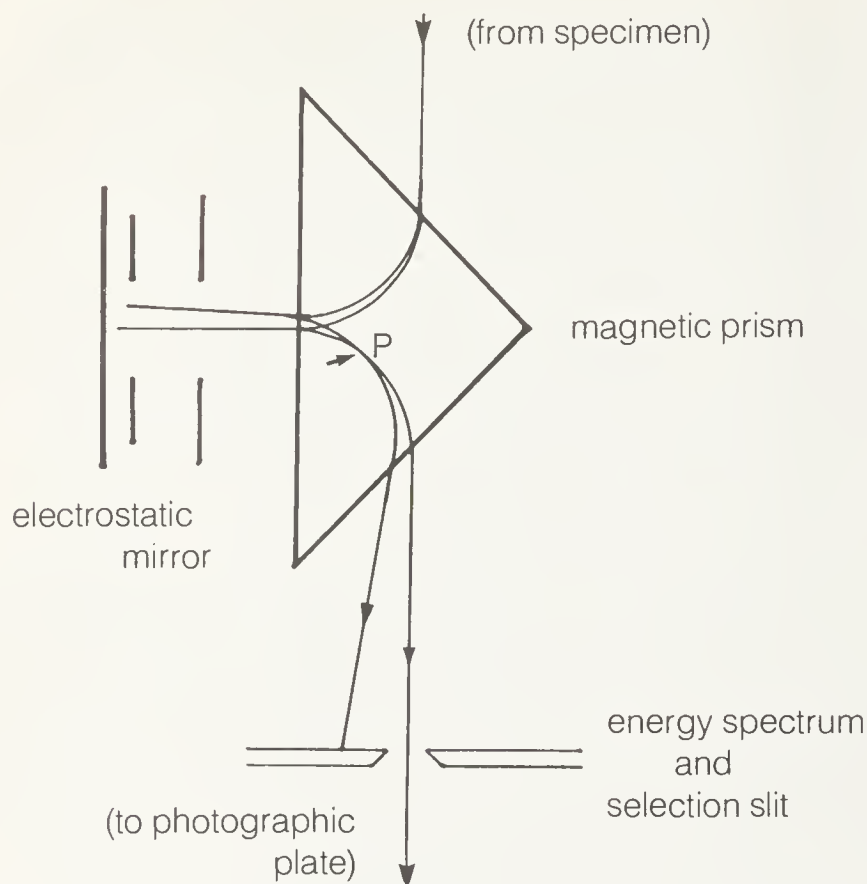
The problem is that, with this method — known as bright-field electron microscopy — the instrument’s capacity to deliver a resolution of two to five angstroms is not exploited. Conventional bright-field electron microscopy, using heavy-atom staining to achieve contrast, has an image resolution of about 20 angstroms. This is not sufficient to observe, for example, the fine structure of even large biological molecules such as the nucleic acids DNA and RNA (ribonucleic acid), responsible for storing and transmitting the genetic code.

Ottensmeyer first became aware of the limitations of conventional bright-field microscopy while he was working towards his doctorate. One day, in the summer of 1964, he overheard two electron microscopists arguing about a viral structure they had been viewing at a resolution of about 80 angstroms. That set the young man to wondering why a finer resolution couldn’t be achieved if the heavy metal stain were omitted and, instead, the specimen were placed on a thin carbon support and viewed in “dark-field” contrast — just as specks of dust in a ray of sunlight show up more clearly against a dark wall than a light one. This approach was suggested in a footnote on page 34 of a textbook by Robert D. Heidenreich, *Fundamentals of Transmission Electron Microscopy*.

But the answer was not that simple. Fuzzy images result when dark-field technique is used to examine lightweight atoms. The cause is the electron energy loss that occurs when the electrons excite the molecules of the matter. Because the electrons lose energy to various degrees, they cannot all be focused at the same time, so the resulting image is indistinct. Confronted with that definition of the problem, Ottensmeyer resolved to find a solution.

“The first step in any scientific advance is the idea . . . and this is where I found it,” he says, taking from his shelf the now battered and taped-together textbook. Coming up with the idea was easy compared to the four years of cerebral slogging that followed, before a solution to the fuzzy-image problem emerged.

“Peter characteristically works on things that ‘can’t be done’ and they end up getting done,” says Larry Arsenault, a post-doctoral fellow in Ottensmeyer’s seven-member research group. “So many scientists become biased after a time. They operate on the basis of certain beliefs that can’t be shaken, even when contradictory evidence comes along. Because of those biases, the real answer to a question can be obscured. Peter doesn’t have any bias. Like all great scientists, he is completely



This schematic illustrates how Ottensmeyer's electron energy spectrometer works. The electron beam, which conveys the specimen image, passes into a triangular magnetic field, is bent 90 degrees and reflected by an electrostatic mirror back into the magnetic prism where it is bent another 90 degrees to emerge vertically on the original axis. Electrons that have suffered an energy loss in traversing the specimen follow the central ray path to the magnetic field then are deflected to a greater extent than the no-loss electrons. With the loss electrons filtered out, the crisp image of the no-loss electrons can be unmasked and recorded.

open-minded and has the capacity to be interested in everything. Although he's a physicist, he's eager to collaborate on all kinds of biological or metallurgical problems. His enthusiasm is childlike. He's after the answer, whatever it may be."

Ottensmeyer decided he could achieve clarity and contrast in dark-field images by building an electron energy filter to sift out "loss" electrons. After considering various possibilities and principles, he chose a design that had been suggested about 1960 by a group of metallurgists working at Orsay in France. Since they were dealing with heavier atoms, they were not faced with the same problems of contrast that beset biologists. So it was left to Ottensmeyer to take their idea a step further and build a prototype.

"You have this gut feeling — admittedly, based on a substantial background of knowledge — but the first step into the unknown," he says, "is more artistic than scientific. Until you have substantiated your theory and made it science, the undertaking can be soured in many ways. Someone could tell you that what you're doing is wrong and worthless. One's anonymous peers on grants panels can have a particularly powerful voice in such matters because they speak in dollars."

Ottensmeyer and his group started out adapting an electron microscope that was 25 years old, so no one worried much what they did with it. After they'd got good results, they were able to compile data in support of an application for a modern instrument. Five models were considered with a view to ease of modification. Only one unscrewed in the right place — a Siemens Elmiskop 102. Ottensmeyer purchased the instrument in 1972 for about \$70,000 and obtained plans for the portions he wanted to adapt. High voltage cables — needed for the electro-static mirror in the filter — had to be purchased. Also on the shopping list were two magnetic lenses — one to adapt the optics of the "home-made" energy filter to the optics of the microscope, and one to permit the filter to be used as an "energy analyzer".

Excitation of the atoms of individual elements occurs at distinctive positions on an energy spectrum. Ottensmeyer's energy analyzing lens can produce images within any selected band on that energy spectrum. Photographic images produced by the electron spectrometer are taken to the David Dunlap Observatory in Richmond Hill, where they are subjected to quantitative analysis on an instrument known as a microdensitometer. It converts the signal from the photographic image into numbers which are fed into a computer and reconverted into yet another image, this time on a video display screen. The areas of differing colours featured in that display represent the various chemical elements present in the specimen.

★ ★ ★

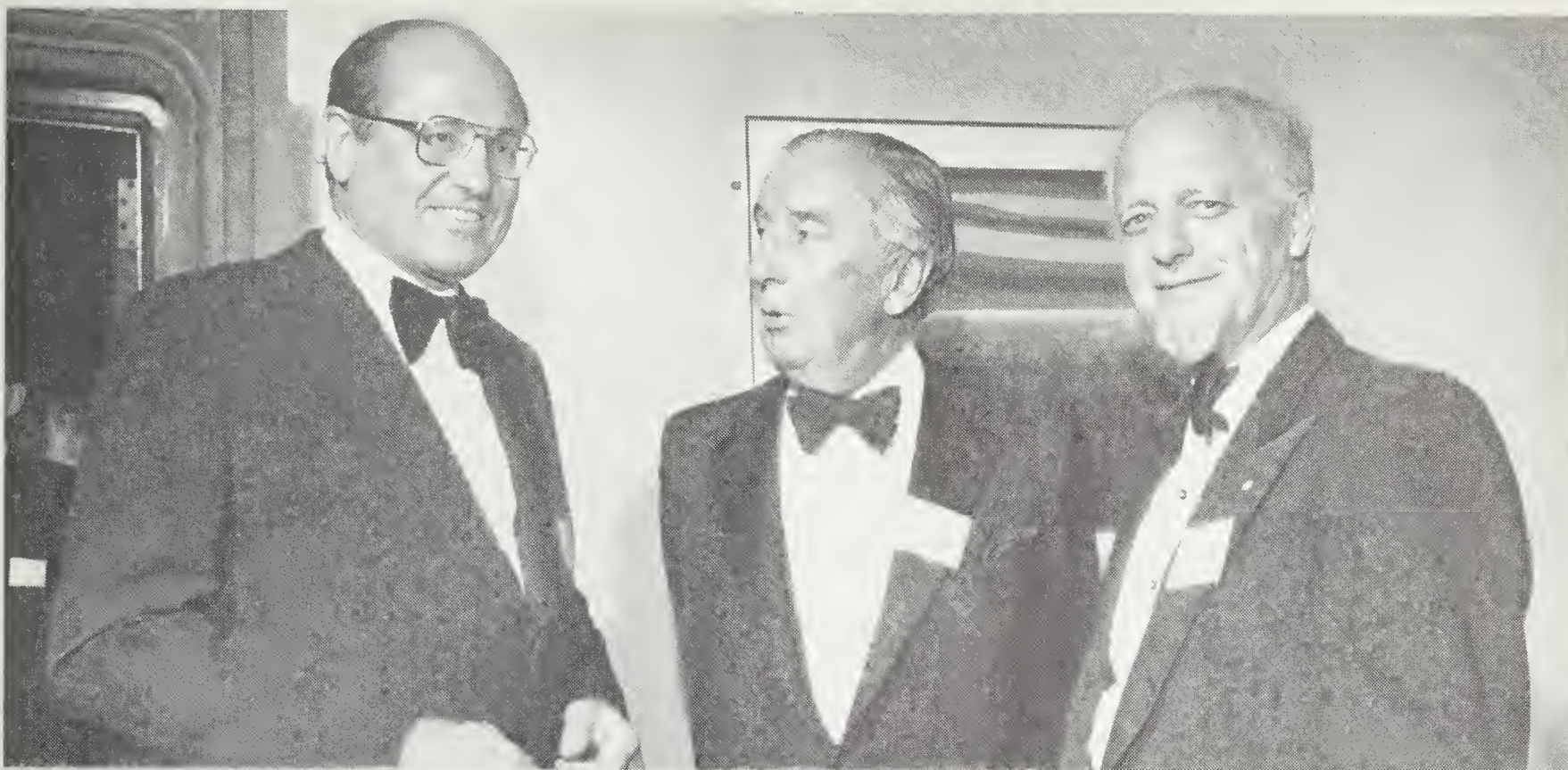
Peter Ottensmeyer's achievements have made him a world class scientist but he shuns what Larry Arsenault calls "big science politics".

"He's completely down to earth," says Arsenault, "and he's always open to people, as well as to ideas. If you go to him with a problem — whether scientific or personal — he will do absolutely everything he can to solve it. He's an incredibly energetic man who gives a hundred per cent all the time."

To ensure that there will always be time for his wife and three children, Ottensmeyer tries to set aside one day a week, to be spent on family outings and activities. He even manages to squeeze in being a Scout leader. His work, though, is never far from his mind.

"Anyone in research, lives research. It takes a particular kind of person, an optimistic breed. We have to believe that what we're doing will eventually be successful, and perhaps even useful.

"It's essential to have a positive attitude pervading the lab. We should be able to enjoy each other's successes while working through our own failures — after nature has revealed our mistakes. You have to have the kind of constitution that can bleed for a while, then spring back."



Above: New chairman William A. Farlinger, founding chairman C. Malim Harding and President Ham.

Presidents' Committee

President James M. Ham demonstrated his gratitude to members of the Presidents' Committee by entertaining them at Hart House.

A source of extra funding for the University since its formation in 1977, the committee, through its 512 members, contributed more than \$1.2 million to the University in 1982. Membership is offered to individual contributors of \$1,000 or more to the University in one calendar year.

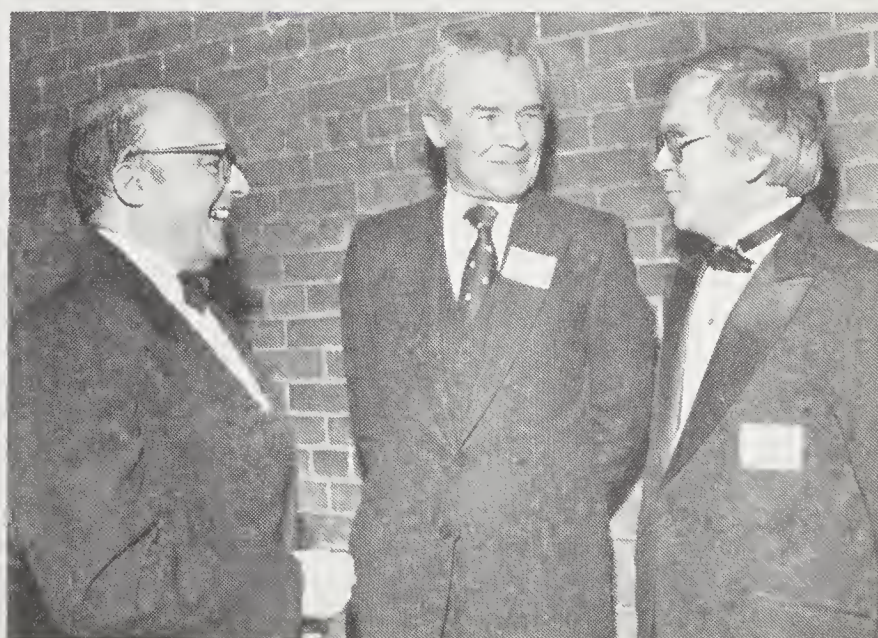
Professor John C. Polanyi, a committee member and this year's speaker, told the members that "in 25 years of teaching and research at this University, I have never felt so deeply concerned about the problems that the University faces. Correspondingly, I know of no period when we have had more cause to be grateful for the interest and concerns of our friends."



Left: Dr. Samuel Lam, Ellen Lam, Monique Chan, Prof. Josef Skvorecky, Dr. Patrick Chan.

Below left: Helen D. Phelan, Paul J. Phelan and Hon. Pauline M. McGibbon.

Below right: Professor Stefan Dupré, Peter Jacyk and Dean Robin L. Armstrong.



HOW'S THE WATER?

BY JUDITH KNELMAN

IS JUDITH HOENIGER DOCUMENTING DEATH OR REBIRTH OF PLASTIC LAKE?



PHOTOGRAPHY BY STEVE BEHAL

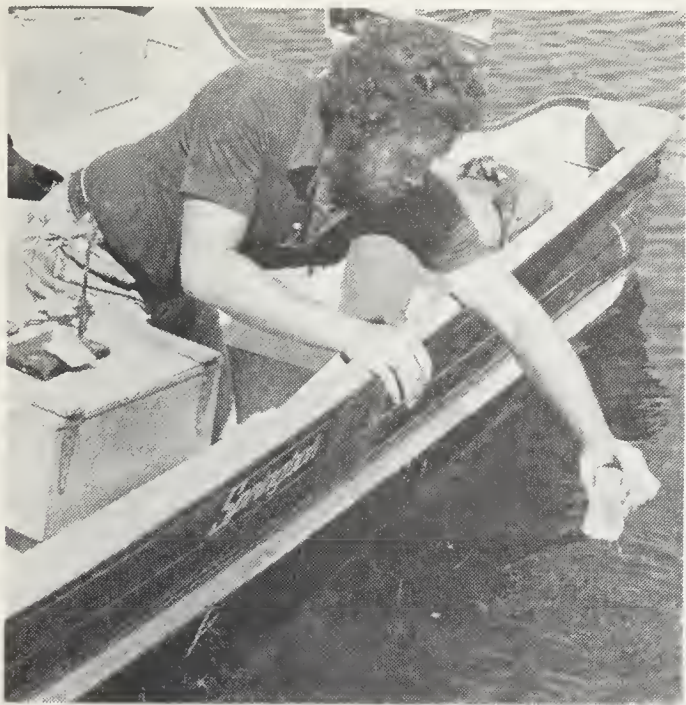
MICROBIOLOGY PROFESSOR JUDITH HOENIGER pulled up at Plastic Lake, one of thousands of small, beautifully clear lakes in the Muskoka/Haliburton vacation area of Ontario, where she'd come to take a sample of the bacteria that grow in the water. A vanload of campers had recently disembarked with the obligatory case of beer and was setting up for a stay of some hours' duration where the road meets the shoreline.

"Camping here?" she asked cheerily and unnecessarily. She is a warm, outgoing woman — the sort who not only engages waitresses in conversation but remembers their names. As the campers watched her unload her scientific paraphernalia, they realized they'd come upon a lake expert and they asked whether there was much chance of catching rainbow trout for their dinner. Hoeniger gently broke the news: though Plastic Lake was once stocked with rainbow trout, there are none there now, and precious few fish of any kind. Acid rain has hit the lake.

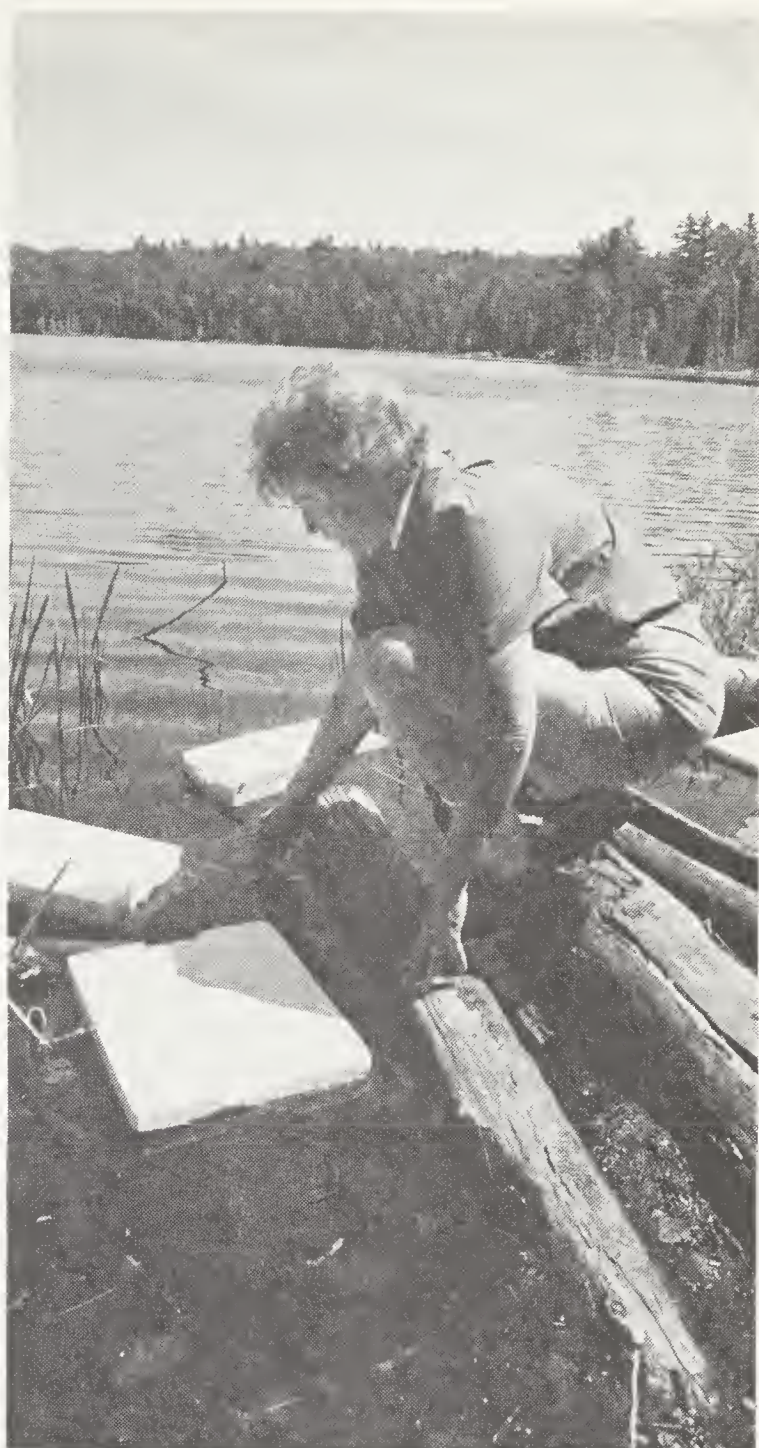
Plastic is one of three lakes in the area being intensively investigated by Judith Hoeniger and two assistants. Red Chalk Lake, a neutral body of water that does not seem to have been affected by acid rain, is being used as a control, and another acid-stressed lake, Chub, is being

looked at because it is humic — brown from the organic breakdown products of the plant material flowing into it. Plastic Lake is as pellucid as a sheet of clear lucite. Yellow water lilies and green slime (algae to scientists) float on the top, and frogs can be seen cavorting beneath. Partially decomposed leaves have piled up below the water along the shoreline, providing a sort of textured brown border under the shimmering surface.

Eventually the yellow water lilies may go the way of the trout. The piles of leaves will grow thicker as acidic conditions inhibit the microbes that decompose them. Already the types of algae found there have changed. What will become of the entire community of plants and animals in the lake no one knows for sure. As Robin Pellow, one of the research assistants on the project, commented: "It's like a girl of seven taking drugs — no one knows what the effect will be when she's 20 and has a child." Hoeniger is trying to measure the immediate effect of the "drugs" — sulphur and nitrogen emissions from industry and traffic that are transformed into strong acids that come down in precipitation — on bacteria and fungi that play an important part at the bottom of the food chain leading eventually to fish and aquatic birds like loons. Her findings, though yet preliminary, have implications for the entire lake ecosystem.



*Judith Hoeniger
in mobile lab
(opposite)
and on site.
Robin Pellow
takes sample.
Shoreline at
Plastic Lake:
documenting
patterns may
help save it.*



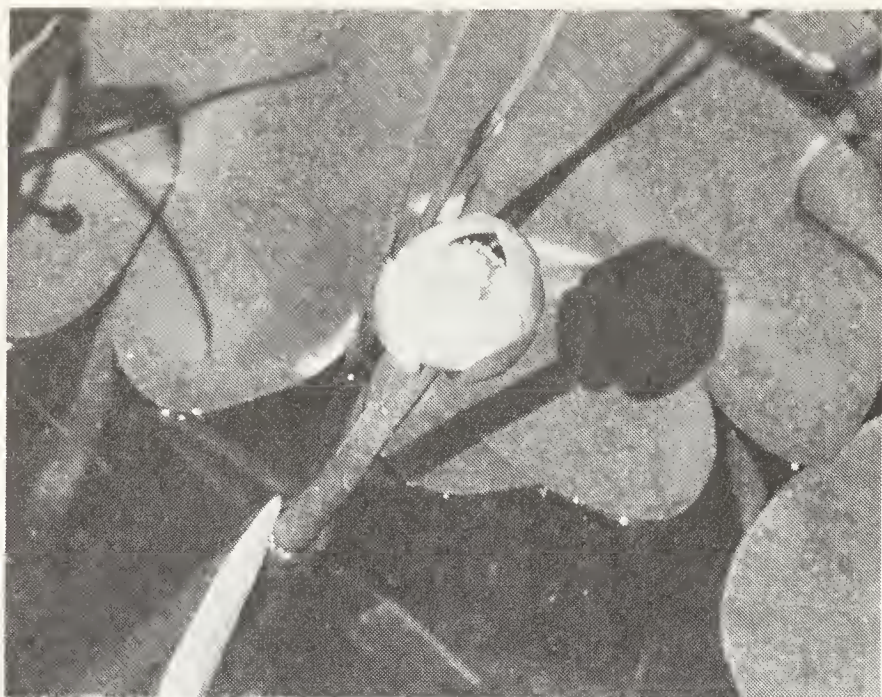
It was all very peaceful and beautiful on July 26, a sunny day that was Hoeniger's fifty-ninth birthday and the day we had chosen for me to accompany her on her rounds of the lakes. Her fifty-eighth, she recalled, had been spent in Sunnybrook Hospital, where she'd landed for an exploratory operation smack in the middle of the first year of the first research project she'd managed to get funding for in years. Nonetheless, she'd gone on with it, mostly by remote control that summer, and she'd spent many days through the winter reading and assessing the findings of her field crew — days determinedly inserted into a relentless schedule of gruelling chemotherapy and radiation treatments that ended with a positive prognosis in May.

It was late April before she summoned the psychic energy to worry about the outcome of her application to the National Research Council for a \$25,000 contract to continue her investigation of bacterial activity in the lakes. When she did call to enquire, she discovered that there was less money in the pot this year and that it was possible she would not be funded. At that point she promised herself that she would go on with at least a portion of the work in the summer of 1983 even if she had to draw on her own bank account — though an entire summer of expenditures on assistants' salaries, supplies,

motels, gas, etc. would be beyond her personal means. At the end of May she got her second piece of good news: her contract had been approved, so she could go ahead on the full scale.

Along with a trailer-camp full of other scientists working at the Dorset Research Centre, site of a large-scale investigation into the effects of acid rain by the Ontario Ministry of the Environment, Hoeniger was momentarily thrown off balance by early summer readings that indicated an improvement in pH level — a logarithmic measure of the hydrogen ion concentration on a scale of one to 14. Readings this year have been higher on account of the lack of snow and rain. But researchers working with nature are philosophical. They know that even though there is great variability from one year to another, patterns will emerge over longer spans. What they need is patience and the money to plot the changes year by year until the pattern begins to reveal itself.

In the early 1970s a pattern began to take shape. It became evident that acid rain was more than a local pollution problem. Winds carry gas emissions thousands of kilometres, dumping acid in Ontario that had its origins in, say, Ohio or Pennsylvania. (It travels in the other direction as well, from the enormous stack at the copper-nickel smelting plant in Sudbury to the Adiron-



dack Mountains of New York.) Certain areas are sensitive to acidic precipitation, and the Muskoka/Haliburton area is one. The pH of the rain that falls there is usually between 4.5 and 4.0, about 40 times more acidic than normal rainfall. (On the pH scale, a chemically neutral solution has a value of 7.0, and the greater the acidity, the lower the number. But since there is always some carbon dioxide present in the atmosphere to combine with pure water and form carbonic acid, normal rain has a pH of 5.6.)

It would take a tremendous infusion of acid over a period of years to lower the pH value of a large body of water to 4.5, the point at which most fish die off. Lakes carved out of rock such as limestone can neutralize the acid and thus maintain a healthy pH level despite the infusion of acid, though there is still a danger to life in the shallower parts during the spring melt, when a larger quantity than can be quickly neutralized pours in. Beneath the lakes in the Muskoka/Haliburton region is precambrian rock, which not only does not neutralize acid but also contains metals that can build up to toxic concentrations in the water.

"All the lakes in the Precambrian Shield are underlain by igneous rocks such as granite and gneiss, which weather very slowly," Hoeniger explained. "They have so-called low-nutrient content, including relatively low bicarbonate — the acid neutralizer. The lakes around here are in the pH 5 to 7 range, but in the Kawarthas, which are underlain by sedimentary rocks, the pH is in the '8 to 8.5 range. There's limestone there, which weathers more readily, releasing carbonates that can neutralize the acid."

She has developed her knowledge of rocks and plants over the years, out of personal interest, and is now finding it of inestimable use in understanding the implications of the situation she's monitoring. "I once took a course in geology, but it didn't mean much at the time," she confessed. "There was a lot of memorizing, and it was pretty dry."

I felt the same way about plant life until she showed me some algae under a microscope. A piece of slime suddenly became a vast collection of tiny geometric conformations that duplicated and reduplicated into rich, intricate patterns in several shades of green.

Under Hoeniger's direction, her two assistants, Pellow and Neil Oakley, were collecting samples of bacteria from the water and sediment in the three lakes several times a week. They also regularly retrieved strips of cellulose that they had stained blue and left in the water to measure the extent to which dye had been lost as an indication of the rate of cellulose breakdown. Cellulose is a structural component of many algae and most aquatic plants, and the rate at which it decomposes in three lakes of different pH and nutrient status could indicate what effect acid rain is having on lake ecosystems.

Though it seemed a dream setting for a summer job, much of the students' work was routine. They would often switch tasks just to relieve the boredom of pouring, measuring, sifting, mounting and recording the samples and preparing their equipment for the next day's expedition. "The boys do all the hard work," said Hoeniger. "I look at the scenery and provide the orange juice and lemonade." An earth mother type, she also stocked the lab fridge with cottage cheese, fruit, vegetables and sandwich fillings so that her assistants would be well nourished, and fussed when they opted to skip lunch so that they could get the lab work out of the way and head for the lakes in the afternoon.

What it has all led to, so far, is a collection of graphs, charts and slides that show what is happening to bacteria in the three lakes. They've encountered many types that a student would never see in an ordinary science lab — some of which may actually diminish the impact of acid rain. Though the species vary from one lake to another, there doesn't seem to be any difference in the total count between the numbers in the acid-stressed lakes and those in the control lake. The numbers of bacteria are a thousand times higher in the sediment than in the water, presumably because there are more nutrients there. In all three lakes, the peak of bacterial production parallels the peak of algal production, suggesting some interaction between the two communities.

One of the most interesting findings is that the cellulose strips placed in the sediment next to the shore decomposed more slowly in the acid-stressed lakes than in the control lake. If dead organic matter decomposes more and more slowly, algae, zooplankton and invertebrates that depend on it for vital nutrients like carbon and nitrogen compounds will be reduced in number, and possibly fish populations supported in the ecosystem will be depleted. The growth of every living creature dependent on the recycling process could conceivably be slowed or stopped.

Hoeniger is an optimist. She prefers to think that she is monitoring the recovery rather than documenting the death of Plastic Lake. Perhaps because of her own dark winter, she believes that there is a force that will bring things right in the end. Things are not always as gloomy as they seem: only a couple of years ago researchers were predicting that acid rain would kill many lakes within a decade. Now it appears that the process of acidification is proceeding much more slowly than that. If emissions of sulphur dioxide and nitrogen oxides were cut within the next few years, the balance in the lake ecosystems could be restored naturally, she says. We are not yet at the point of no return. But we may get there, should we delay too long. ■

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In addition to Dr. Shulman and Mr. Sarlos, contributors to *The*

MoneyLetter include:

David Louis, formerly Partner-National Tax with Ernst & Whinney, one of the world's largest accounting firms. He has given *MoneyLetter* subscribers dozens of tax-saving strategies and techniques.

Roy Hardaker, founder and first president of the Association of Fellows of the Canadian Securities Institute, has proved himself an unerring guide to today's best return on money invested, along with income-producing opportunities.

Peter C. Cavelti, senior vice-president of Guardian Trust and author of *New Profits in GOLD and the Precious and Strategic Metals Markets*, has worldwide experience in precious metals, currency and banking.

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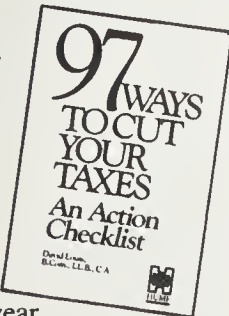
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T-HOLDERS SEEK MEANS OF CELEBRATING ATHLETES



THE DAY IS FINE AND IT'S spring on the St. George campus. A group of students are seeking escape from exam tensions by playing a carefree round on the University's 11-hole golf course, being careful not to trespass on the territory of the Taddle Creek beaver, known to Varsity students as True Blue. Elsewhere on the campus, other students are involved in lacrosse, tennis, baseball, cricket, paper chases and even various forms of what is termed "physical culture" — interesting exercises with wands and Indian clubs.

Eighty or so years ago such scenes were a very real part of athletic life at U of T. The golf course began where Philosopher's Walk is now and extended easterly north of present-day Victoria College. One of the course's frequent users was F.W. (Casey) Baldwin, captain of the Varsity football and cricket teams, and widely regarded as the "Big Man on Campus" in 1902. Baldwin's golfing skills are not recorded, but in 1903 his was the first name to appear in the First T-Holder's Award Book.

The Varsity athletic tradition predates both Baldwin and the golf course by several decades. In fact, the earliest record of a rugby game played on campus is dated 1861. One of the team captains was William Mulock, later a federal cabinet minister, Chief Justice of Ontario, a knight and vice-chancellor of the University. His name is perpetuated in the Mulock Cup, Canada's oldest football trophy, awarded annually to the champions in the U of T intramural tackle league. When asked by students for assistance in their fund drive for a suitable trophy, Mulock replied, "Get a good one and send the bill to me."

That was in 1894 and the better known Grey Cup was still 15 years away, as the initial "national championship" was not played until 1909. The Varsity Blues, led by the great Smirle Lawson, won that first Grey Cup game, repeating again in 1910, 1911 and for the fourth and final time in 1920. The footballs used in the 1909 and 1910 games are on display in the athletic centre, which opened in 1979.

Both cricket and baseball were once almost as popular as football among Var-



J.R. (Bobby) Coulter, captain, 1935 rugby team, Blues head coach '46 & '47.

sity students. Cricket flourished until 1926, when the U of T club merged with the Toronto Cricket Club. Baseball had a somewhat shorter lifespan, but in its heyday Varsity played against many major American and Canadian universities.

During the First World War, the student-soldiers often played softball in the as-then-unfinished main gym of Hart House. The baselines, batter's box and a

pitcher's "mound" were painted on the rough sub-flooring and came to light only when a new hardwood floor was installed a few years ago.

Over the years, the Varsity name has become perhaps best known in the world of hockey. On the ice, men's teams can be found as early as 1890 and the tradition climaxed in 1928 when the Varsity Grads, a group of alumni from the 1926 and 1927 University teams, won the Olympic gold medal. A few years later, Conn Smythe, who had played and coached at Varsity, "borrowed" the Blues maple leaf sweater design when he launched the Toronto Maple Leafs. The U of T connection with the National Hockey League also includes such personalities as NHL Hall of Fame member Ace Bailey, who coached the Blues from 1935 to 1940 and again from 1945 to 1949, and more recently Tom Watt, who led the Blues to nine national championships and then moved on to become NHL coach of the year in Winnipeg in 1981-82.

Field hockey was introduced as a women's sport at the University in 1960, and over the next two decades the team amassed a truly outstanding record — 20 consecutive seasons without suffering a single defeat in an Ontario league game. The tradition of excellence is still alive, as four U of T players were members of Canada's national team which won the silver medal this spring at the World Cup tournament in Kuala Lumpur.

Twenty championships in a row is a truly outstanding record in any sport, but at U of T it's good only for second place. At the top stands men's swimming and diving, in which Blues have won 23 successive Ontario university championships and 12 of the 18 national meets held to date. In recent years the women's record is equally impressive, Ontario honours for the past seven years and five consecutive national championships.

On the international sports scene, more than 150 male Varsity students or graduates have represented Canada at a succession of Olympic Games in a wide variety of sports including sailing, rifle shooting, basketball, rowing, track and field, skiing, swimming, waterpolo and fencing. The U of T medal total to 1976 exceeds 30.

In other major international competi-

tions, more than a hundred male students or graduates have been on the Canadian teams at either the Commonwealth, Pan-Am or World University Games and earned more than 50 medals. Figures for international participation by Varsity's female athletes are still incomplete; however, earlier this summer eight women athletes and coaches were among the 35-member U of T contingent selected to represent Canada at the World University Games in Edmonton.

The development of women's athletics can be traced from the formation of the Ladies Tennis Club in 1893, but for a variety of reasons there was little or no true intercollegiate competition until 1921 when a basketball tournament was

held at Queen's with McGill and Varsity being the other teams. The schedule soon expanded to include tennis and ice hockey, but the major developments did not occur until after the Second World War. Some sports have been added only recently, for example, international track star Abby Hoffman, who represented Canada at four Olympics, never won an athletic "T" during her student years at U of T because women's track was not officially organized until 1971.

Despite the pattern of uneven development and the gaps in research for some sports, there is no question as to the

Bill Crothers, voted athlete of the year by the Canadian Press in 1964.

richness and accomplishment in the Varsity athletic tradition. Athletes who have worn the U of T blue and white colours with distinction include Don Carrick, a member of the 1928 Olympic boxing team and runner-up in the 1950 voting for Canada's outstanding athlete of the half-century, golfer Sandy Sommerville, Lester Pearson, Foster Hewitt, journalist Phyllis Griffiths, Dr. Marion Hilliard . . .

Of special significance is the fact that, on four occasions, U of T students have earned national recognition in the Canadian Press voting as athlete of the year while still undergraduates — runners Bruce Kidd (1961 and 1962) and Bill Crothers (1964) and marathon swimmer Cindy Nicholas (1977).

In an effort to keep this tradition alive, the men's and women's T-Holders' Associations are considering projects which will form a fitting testimonial to the outstanding individuals from among the more than 11,500 men and 2,000 women who have participated in intercollegiate athletics at U of T. Thus, a Varsity Hall of Fame and perhaps a Wall of Distinction could become a reality this fall. One fact is certain: the selection committee will not lack deserving candidates. Readers are invited to send in their nominations. ■

James Innes (Hud) Stewart (Trinity '33) who supplied most of the information for this article, is president of the men's T-Holders' Association. He won his "T" for five different sports, was a member of Canada's 1932 Olympic track and field team and is currently active in masters' swimming competition.



FIRST IMPRESSIONS & CULTURE SHOCK



PROSPECTIVE STUDENTS DECIDE whether or not to attend U of T, not on the basis of what the University is like, but on the basis of what they *think* it is like, says a recent U of T report on recruitment and admissions. Unfortunately, U of T's image in the high schools is not as positive as it might be — a situation the report says should be corrected as soon as possible.

Prominent among those it recommends as being best able to tackle the image problem are members of the alumni. Volunteers, selected for their enthusiasm, could visit their local high schools to hand out brochures, outline procedures and offer personal impressions. The University might subsequently send the volunteers names of local applicants so the volunteers could arrange to meet with each applicant for an interview and perhaps even extend an invitation to dinner. Select undergraduate students, as well as willing faculty members, could also help with the high school liaison program.

To gather impressions of campus life from first-year undergraduates at U of T, questionnaires were sent out, with more than 1,225 being returned. About 90 per cent of the respondents reported receiving courteous treatment from U of T personnel and about 85 per cent said they would recommend the University to their friends. The report suggests that U of T's reputation as "a cold, impersonal place" emanates in part from the "inevitable culture shock" of making the transition from high schools, which are relatively small, to a university that is very large.

"Every opportunity should be taken to publicize all the great and interesting things that are going on here," says the report.

Some North American universities, it notes, budget as much as \$500 per admitted student for "recruiting and propaganda". This would amount to about \$5 million a year for U of T, which currently spends less than one-tenth of that sum. At a time when it is necessary to compete for good students, says the report, the present budget is totally inadequate.

"The University should develop high profile publicity materials and activities for senior high school students. Examples might include magazines in the humanities, summer computer camps, field



camps in the natural sciences, and summer apprenticeships in laboratories."

The report also recommends advertising in the national and foreign press. Recruitment activity outside Ontario is almost non-existent. Nor is there much contact with Ontario's independent high schools. For high school teachers and students in the Toronto area, the promotion of campus visits is recommended along with allowing gifted students to take U of T courses for credit while still in high school.

Once the University has succeeded in attracting top quality applicants, it should guard against alienating them through lackadaisical admissions procedures, says the report. Recommendations call for starting the process two months earlier than at present, computerizing the handling of applications, and sending out prompt offers of admission in *one* letter that tells each student everything he or she needs to know — which college is offering admission and to which program, whether or not a residence place is available, whether or not a scholarship or bursary has been awarded and, if so, how much.

But, warns the report, "all the efforts to project an attractive image of the University are in the end futile if the reality falls significantly short of what is being advertised."

Even though some first-year classes are large, the professors should still be accessible to the students. And while high academic standards should be main-

tained, a punitive approach to marking — where 90 per cent of the class fails the mid-term test — is condescending and adversarial and should therefore be taboo, adds the report.

More scholarships should be made available, as should more residence spaces. In 1981, 98 applicants said they refused an offer of admission from U of T because they could not get into residence.

Finally, the report notes that the suburban colleges, being considerably smaller than the St. George campus, are more conducive to "an ambience of fellowship." Downtown colleges are urged to "actively and aggressively create a role for themselves in fulfilling the extra-curricular needs of the student body."

GATHERING PLACE

WHILE FIRST-YEAR STUDENTS WERE being surveyed this past year by the task force on recruitment and admissions, senior students were being asked for *their* views on university life, too, as part of an assessment of personal counselling needs and services. One recurring comment in the responses was on the need, at the St. George campus, for a central gathering place where students from the various colleges and faculties could get together in a relaxing atmosphere.

Happily, the University has already moved towards meeting that need in its development plan for the southwest corner of the campus. One phase — a student lounge at the south end of Sidney Smith Hall — has been completed. Students have been lobbying for something like this since 1947.

The showpiece, however, will be the Koffler Student Services Centre to be housed in the former central library at 214 College Street. The centre bears the family name of Murray B. Koffler, founder and chairman of the board of Shoppers Drug Mart Ltd. A graduate of the University's pharmacy program (1946), Koffler has donated a substantial amount of money to the project and is assisting in a campaign to provide additional support. Estimated cost of the

centre is \$10 million.

By January 1985, the Koffler Centre will house the Health Service, Bookroom and Textbook Store, Career Counselling and Placement Centre, Advisory Bureau, Housing Service and Disabled Persons Services, along with lounge space.

The Koffler Student Services Centre is just part of the impending transformation of the southwest campus. By far the biggest component will be the Natural Resources Centre, for which the Ontario government has committed \$30 million. It will house teaching and research pro-

grams in forestry, botany, geography, geology and environmental studies — long squeezed for space in their respective quarters.

The Natural Resources Centre is intended to become a focus for a broad interdisciplinary approach to Canada's resources: finding them, developing them, preserving them and protecting the environment. The centre will have close ties with the Faculty of Applied Science and Engineering.

To be located in the area bounded by Spadina, Huron, Russell and Willcocks,

the Natural Resources Centre will incorporate a new laboratory building and extensive renovations to the Borden Building and the Textbook Store. Construction will probably begin in 1984, once designs have been completed.

Estimated cost of the project is \$44 million, with the province providing its share over five years. The University will add \$5 million from Update funds and will seek the rest from corporate and private donors. Adam Zimmerman, president of Noranda Mines, will lead the fundraising campaign.

National Universities Week

National Universities Week, emphasizing the place of the university in the community, will be held on campuses across Canada this fall. At U of T, from October 2 to 8, there will be special events demonstrating the role of the University in the life of the city, province and country. Watch for details in the Toronto daily newspapers the week before.

Some of the open houses and tours planned for the week are as follows:

Engineering at Toronto.

Friday, Sept. 30 and Saturday, Oct. 1.

Friday, 1 to 9 p.m.; Saturday, 10 a.m. to 5 p.m.

Information, 978-4941.

Scarborough Campus U of T Connections.

Friday, Sept. 30 to Friday, Oct. 7.

Campus is going to the community: displays and videotapes of research and teaching projects; lectures and demonstrations concerning various departments. Scarborough Civic Centre.

Information, 284-3243.

Robarts Library Tours.

Saturday, Oct. 1 and Monday, Oct. 3 to Friday, Oct. 7.

One tour daily starting from main lobby at 3 p.m. Self-guided walking tours available other times.

Information, 978-2498.

Erindale by Daylight

Sunday, Oct. 2.

Special tours of research areas on campus. Meeting Place, South Building. 2 p.m.

Information, 828-5214.

Faculty of Library and Information Science.

Monday, Oct. 3 to Friday, Oct. 7.

Tours from 7th floor lounge at faculty, 140 St. George St. 12 noon to 2 p.m.

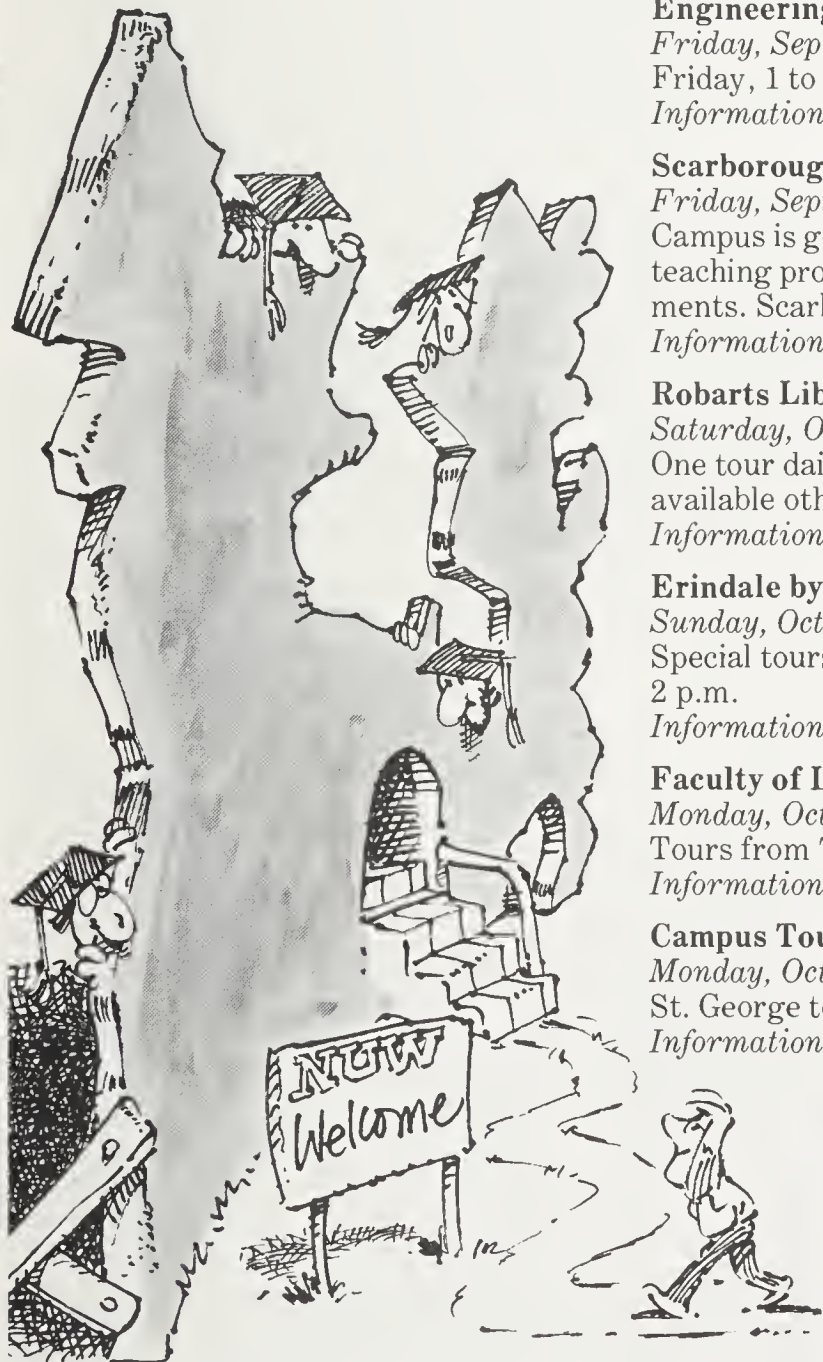
Information: 978-3035.

Campus Tours.

Monday, Oct. 3 to Friday, Oct. 7.

St. George tours from lobby of Hart House at 1.30 p.m.

Information: 978-2103.



Lectures, exhibitions and other events regularly listed in *The Graduate* but arranged particularly for these celebrations will be found under their headings. Other special events were in the planning stages at press time. As with all events, readers are advised to check with the information telephone numbers given.

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TENURE ATTACK HAS HOLLOW RING

THE LETTER OF ROBERT F. LEGGET (May/June) attacking the concept of tenure can hardly be allowed to pass unremarked.

First of all "The Pursuit of Excellence" was written as part of a much broader campaign and it is very doubtful if its author really believes "that tenure is the single most important element that helps to make and keep a university great" so Dr. Legget has probably drawn the wrong conclusion, but that is hardly his fault. Time will tell.

It is, however, perfectly silly to say that tenure had not been heard of in his day. It has been with us *de facto* for a very long time indeed. What is amusing is to read an attack upon tenure from a man who has enjoyed one of the most secure forms of tenure yet invented — the federal civil service. Unlike the universities where a tenured instructor must remain on the frontiers of knowledge, Dr. Legget's institution makes no such demand. Many have maintained themselves at such levels, and he enjoyed a respectable reputation in engineering geology, but it is unlikely that he would have lost his job had he not done so. The structure rings hollow.

John Gittins
Department of Geology

We apologize to Robert F. Legget, O.C., for mis-spelling his name in the May/June issue. His Toronto degree "not earned in the usual way" was an honorary one; he holds 12 others from institutions in Canada and abroad. A respectable reputation indeed.

Editor

Focus on Research, Alumni College Day at Spring Reunion, was full of interest. Prof. R. Craig Brown, associate dean of graduate studies, described current scholarly programs in the humanities while Dr. Edward Llewellyn Thomas, associate dean of medicine, reviewed research studies in the medical sciences.

This was a happy combination of reports which gave us an impressive glimpse of the volume, range and depth of the University's intellectual scanning. The present strait of the universities

because of economic constraints and reduced public funding is particularly critical since we are in the midst of rapid advances in molecular biology. It is now probable that in the 21st century mankind will command means of moulding hereditary, genetic and growth processes.

These vistas are not Orwellian fantasies but possibilities now on the horizon — fraught with import for both the humanities and the sciences. The new knowledge forms a bridge for them — a conjunction where both have to work together if mankind is to survive and develop.

Neither should work in isolation. Over the next hundred years science will be the leading and cutting edge in the social tasks ahead. But the humanities will have to steer and determine where we go and what we do. Far from being impractical, the humanities are the *sine qua non*, the essential elements for civilized society. Without the humanities the sciences cannot be used safely. And without the sciences mankind will have no new tools for the good life.

Congratulations on mounting such a timely college day.

J. Allan Walters, M.D.
Toronto

Whip-Poor-Will

To the tree near bedroom sill
Flies the nightly whip-poor-will,
Finds the tranquil night too still,
So displays his only skill:
To pierce the silence with the shrill
Relentless pourings, aimed to kill
With surgeon's knife and
concrete drill.

Then he stops and waits until
All pray he's gone — or feeling ill.
Hark, there again on nearby hill
With doubled effort hear him spill
His tuneless chant, bereft of trill,
The Last Trump issues from his bill.
The dead awake and take a pill;
Their hope of R.I.P. is nil.

Sue Polanyi
Toronto

Letters may be edited to fit available space and should be addressed:
Graduate Letters, Department of
Information Services, University of
Toronto, Toronto, M5S 1A1.

Re: the editorial "Spring Fever" in the May/June issue of *The Graduate*.

As former associate editor at *the newspaper*, I feel you have besmirched the professional reputation of our publication, cast aspersions on our journalistic integrity and done got it wrong.

First, you doubt that Vice-President and Provost David Strangway really said all those things to us about his plans for his interim presidency from July 1 to Sept. 1. It took two interviews, a welter of leading questions and a complete disregard for context but we finally did get him to say "I intend to turn this university around."

As for the provost's poor grammar, at least six persons were in the room when Strangway split an infinitive as deftly as a pioneer would a log: "I intend to completely redecorate."

Second, I was delighted to see you reproduce one of Chris Sowton's brilliant satirical cartoons. He is an exceptionally talented artist, something we spotted the moment he walked into our offices last September. You see, Chris worked for *the newspaper*, not *The Varsity* as you state in your editorial. A small distinction to you, perhaps, but in the world of campus newspapers these things are vitally important.

You say you have lots of practice writing corrections for the *Toronto Telegram* — how about one for *The Graduate*?

Dean Beeby
Associate Editor, 1982-83
the newspaper

We could not do better than Mr. Beeby and thank him for performing this task for us. We regret any embarrassment to Mr. Sowton, the newspaper and/or The Varsity.

Editor

ADVICE TO MY DAUGHTER: HAVE FUN AND EXPLORE



MY DAUGHTER ENTERED THE UNIVERSITY of Toronto this fall, and I have been showering her with advice on what to take. Not about her major subjects, a decision too important to leave to parents. "Take your three sciences," I said. "But then have fun with a couple of courses. Try something you never thought of. Open up your mind. Go for the great lecturers. That's the advantage of a big university."

A generation ago, the old honours courses in arts offered a *prix-fixe* menu. Several courses were compulsory. We chose the rest from short lists: "Two of English 1a, 1i or 1j, Greek and Roman History 1b, History 1b, Philosophy 1d or 1c." Today's students select *à la carte* from a list that begins with actuarial science, ends with zoology, and in between embraces most human interests. The choices are not unstructured or unfocused, especially after first year, but options abound.

I suggested courses in Greek philosophy, Middle Eastern history, twentieth century literature, Canadian studies. The advice was considered and deliberate, drawing on 30 years at the university, directing Joan to professors I knew and admired. It was also, of course, pure indulgence, a vicarious resurrection of my own first year on campus — memories that remain remarkably clear even as the rosy clouds around them grow tattered.

What I remember best — and this is what I was trying to get across — are the lecturers of that first year. Men (it was a male-dominated campus) like R. MacGregor Dawson, who strode into the big lecture room on Bloor Street (now the recital hall of the Royal Conservatory of Music) with black gown flying, shock of white hair ruffled, and thrust aside the microphone on the dais — his voice needed no assistance.

"Here is my book, *The Government of Canada*," he announced. "Buy it. You will need to know the following chapters. If you want to sleep, sit in the back of the room." I don't recall his ever mentioning the book again. Instead he talked about people like Walter Lippmann, things like the formation of public opinion, events like the King-Byng constitutional controversy of 1926 in which he had played no small part. It was a stirring introduction to

political science by a larger-than-life friend and future biographer of Mackenzie King. No one slept in those lectures.

Or Bertie Wilkinson, who infused his lectures on the Middle Ages with passion and knowledge that subsequently built Toronto into a world-class centre of medieval studies. At his final appearance that year we serenaded him, to an old tune with new words that compared our devotion to him with that of Abelard and Eloise.

Academic timetables in those days descended from on high (today a student can build his own) and I ended up with three tutorials in a row each Tuesday morning — political science on Bloor Street near Avenue Road at 9, history in Baldwin (now Cumberland) House, on St. George nearly at College Street, at 10, and economics back on Bloor at 11. The first two invariably went over time. In the ten-minute breaks between, I benefited from lots of exercise. I might have changed the schedule if I hadn't been so

green; but then I might have missed Bertie as a tutor, and his academic charity.

Each week, one of his small tutorial group was expected to give a paper. I drew the first assignment. University students, I knew, were expected to present original thoughts. A fortnight after initiation, I delivered an alternative theory for the decline and fall of the Roman Empire. Bertie gave it an *alpha*-minus. During the next four years, a few scattered As followed, but never another *alpha*. Bertie Wilkinson had class.

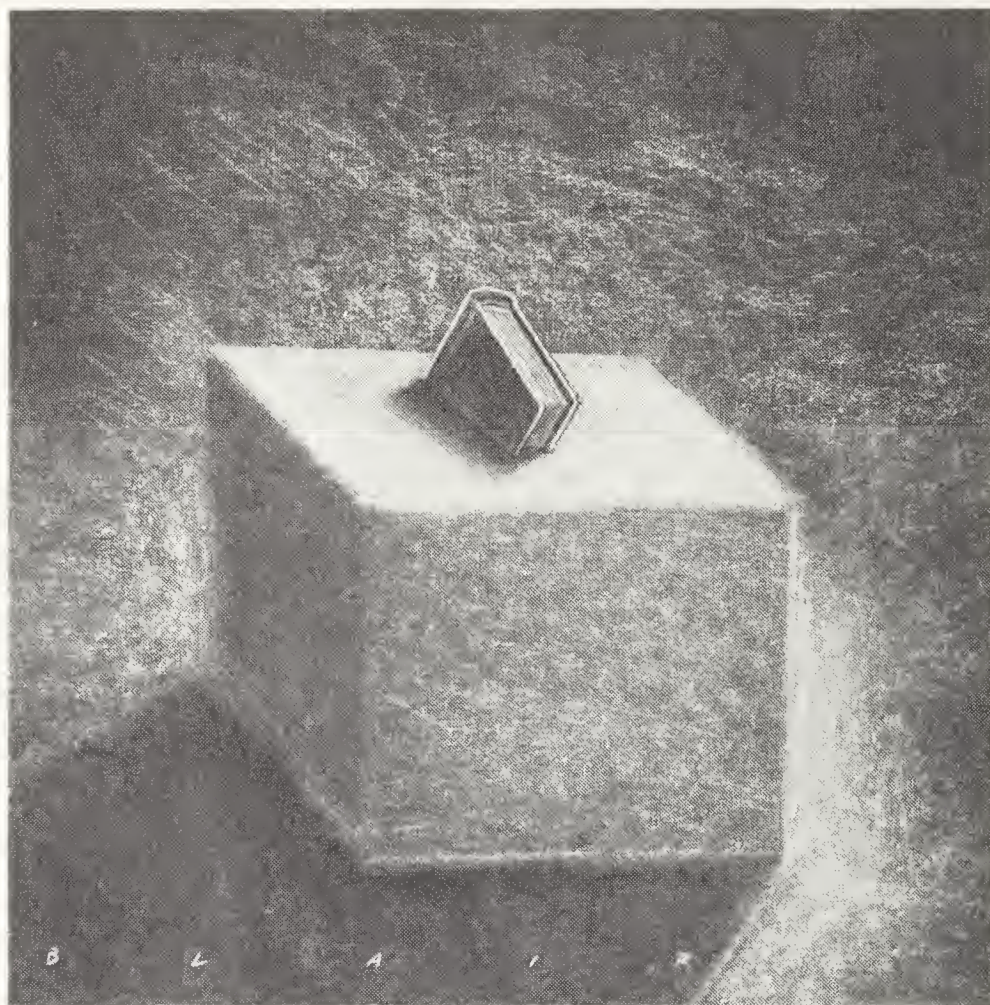
This is the tradition — of breadth, of passion, of compassion — to which I tried to steer my daughter. Not unexpectedly, she chose none of my suggestions. The last I heard, she was taking a course in Shakespeare, a half-course on Buddhism, a half-course in the history of science and natural magic.

They will be right for her; she will have her own memorable encounters. But I have a number of good ideas for my next time round. ■



SUPERTEACH

BY ROBBIE SALTER



BEGINNING WITH A PROCESS OF SELF-DISCOVERY

MOST OF US HAVE VIVID MEMORIES OF ONE OR TWO teachers who often ruled like a god. Discipline was master and concentration its companion.

The oak desks and the pine floors were spotted with ink and the map of the world was largely the colour of coral. Those were the days of the Empire on which the sun never set. Classroom windows could be opened then to let in the sweet smell of lilacs and the crack of a bat on a ball.

It is different in many of today's concrete classrooms, where restlessness flows as constantly as the re-cycled air. A ball point pen snaps up and down. A jogger's shoe rubber-stutters up and down the leg of a desk. The spine of a new novel cracks. But this is not a course in English. It is a course called *Understanding the Child and Youth*. The students at the Faculty of Education are learning

how to teach. Their professor is Claude Brodeur.

"Life is a mystery to be explored," he tells the class, "and not, as Newton once said, an enemy to be conquered."

Brodeur is a metaphysician: a philosopher and a psychologist trained in Gestalt and other methods for both teaching and learning. His education took him from schools in New England to Stanford to Toronto. For close to 30 years he has been at the U of T, on one side or the other of the professor's desk.

He shares with his students the breadth of his classical education which, he says, gives you a sense of history, of who you are, and where you are going. His words are weighed, but not measured, and spoken with clarity and control.

"The students come into the course as strangers to me, to each other, and to themselves. Through a process of discovery they return to the abc's of who they are, a

Robbie Salter is a freelance writer.

source from which they can grow."

The students learn to face the truth and answer questions. Why do you want to teach? Do you ever do anything without wanting something in return? Do you agree with Aristotle that the two impulses that most influence people to love and care about each other are: "This is my own" and "This I love"? When they know themselves, their professor tells them, they will understand the young intellects they in turn will guide.

He combines the traditional principles of pedagogy, reaching back to Aristotle and Plato, with modern, flexible methods. Many in the class are already experienced in teaching. But they learn new ways to think without confusion, to speak and write with clarity. They learn patience and precision. He is firm.

A student walks up to his desk, waving a report in the air, fatigued, frustrated. "I've already rewritten this. How many more times do you expect me to rewrite it?"

"Maybe five, six, or seven times more. As many times as you have to. It's up to you."

"But there's not enough time," the student protests.

"You have the same 24 hours as everyone else. The difference between you and someone else lies in how you use time. It is your most valuable possession," he replies.

It is often in small groups that the students gain insight into themselves and each other. The pressure to grow is gentle, even and firm. They learn to respond as well as react to life's challenges as well as its invitations. They develop an intellectual touchstone against which they can test what is pure, what is pinchbeck.

Their own close encounters in the classroom at U of T prepare them for their days of practice teaching, prepare them for what they may hear when they ask the question, "Billy, why did you kick Tom?"

There are still conventionally happy children from happy homes. There are others who are miniature civil wars. They may have heard the trench warfare of their parents' marriage. Who's moving out? Who's staying?

Will Dad keep his job? Will we have to move? Against the rattled mind there may also be the drum roll of a little stomach wanting food. Teachers today understand why Billy took his boot to Tom, why Billy carries one small psychic bomb — just in case the combat comes too close.

Some students have more trouble than others in combining the science of teaching with its art, its philosophical quality.

"How can I get an 'A' in this subject?" one student asks. "I don't even think metaphysically. Not the way my mind works."

"It will if you guide it," says Brodeur.

He has watched students change from mere costering in the market-place of marks to understanding that learning-teaching asks them to aim for the mark of life itself instead of only a mark.

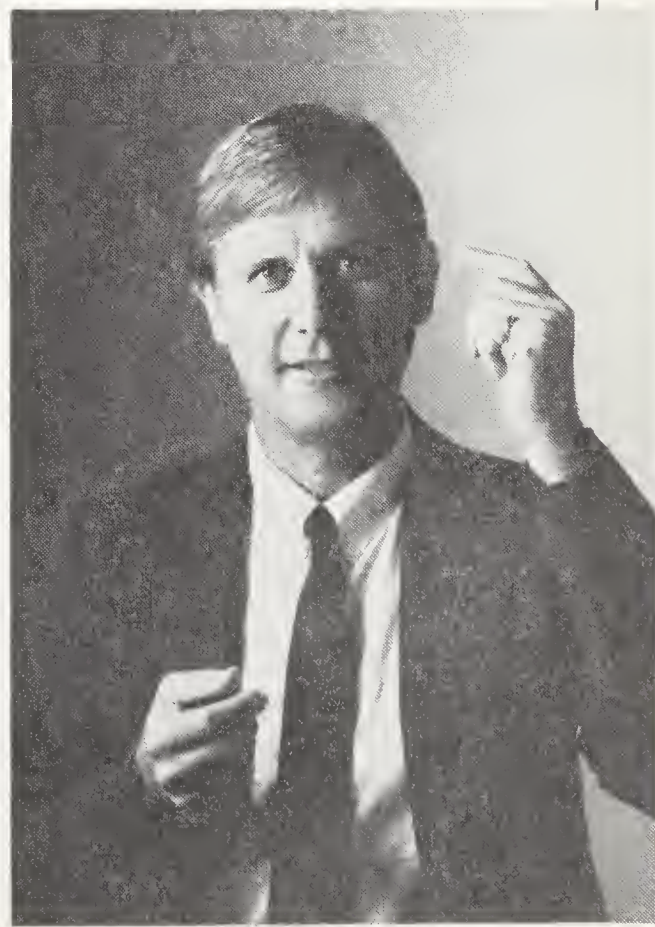
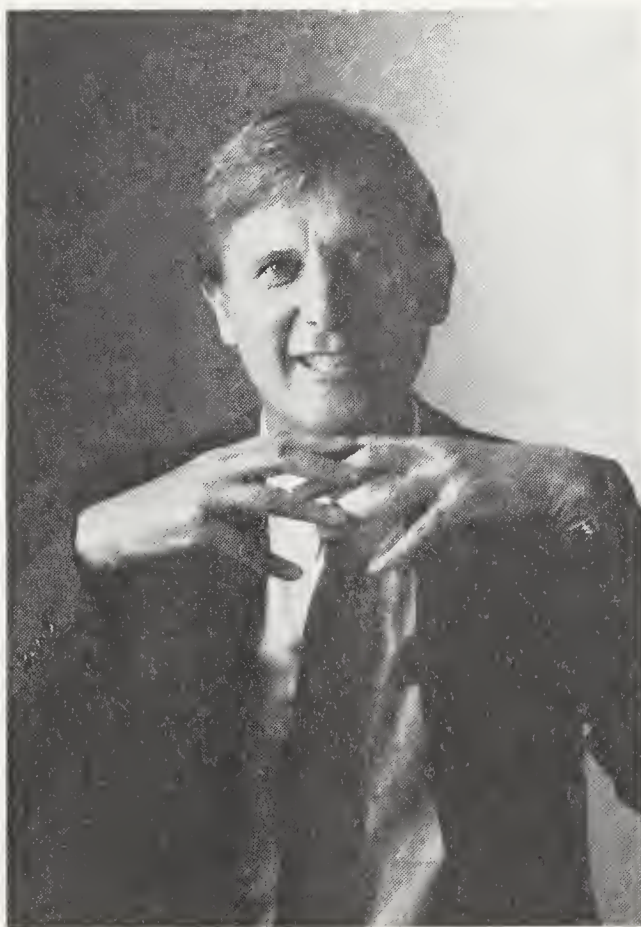
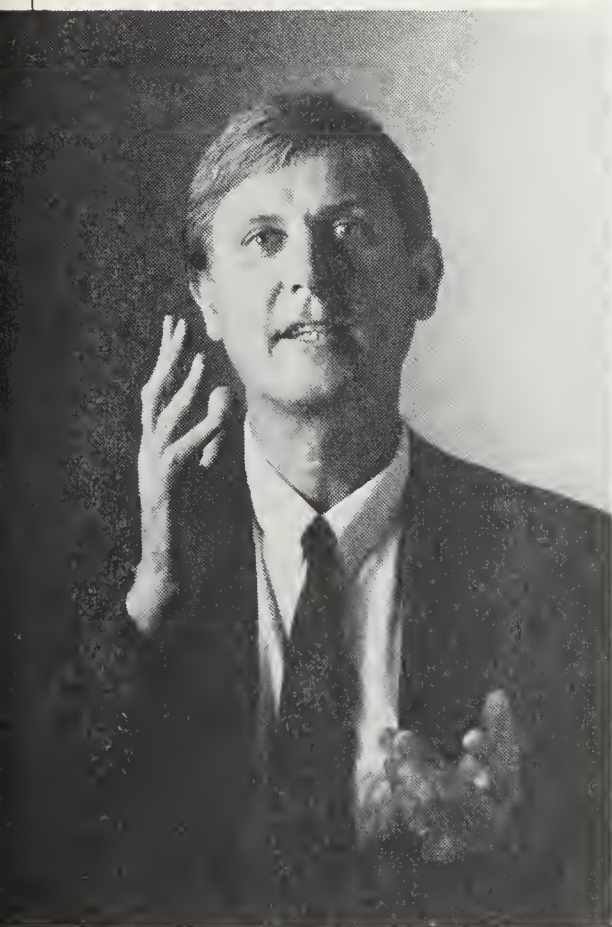
"I try to stop a student from taking off on a flight-for-marks and just get through the system. I believe students should learn how to push away the walls they built for themselves to survive the academic life," he says.

The new kind of integrative teaching bonds the body with the mind, relieving stress through relaxation. Visualizing particular scenes and using autogenic exercises opens the students to deeper channels of creativity and intuition. The right, creative half of the brain — the artist — becomes balanced with the organizing left half — the scientist. The right side would see the ocean waves chase each other onto the sand; the left side would count the shells. In North American schools, it is the left side that is most commonly served.

The classroom is silent now.

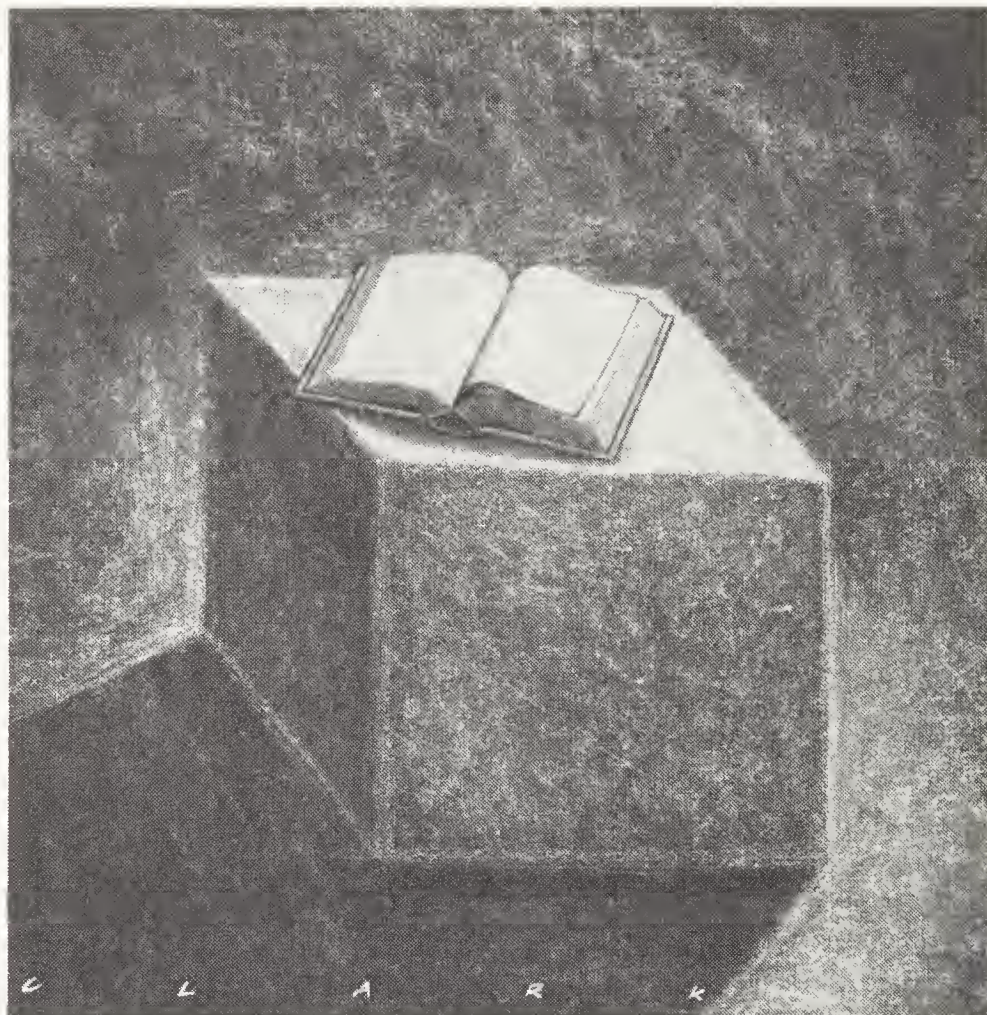
There is also quiet, the quiet that asks for quietness in the moment of facing one's mystery, one's personal, private promise. ■

Claude Brodeur, Faculty of Education.



SUPERLEARN

BY ROBBIE SALTER



THE OCCULT AND THE BAROQUE FIND RELEVANCE IN CLASS

FOUR YEARS AGO, AT SCARBOROUGH COLLEGE, Professor Jane Bancroft introduced a method which speeds up learning and sharpens the recall. It has been variously called "superlearning", suggestopedy and suggestology. It is accelerated learning for our accelerating world. She uses superteaching methods to help her students learn French.

In her classes the students learn French two and a half to three times faster than with conventional methods.

They learn to relax the mind and the body using ancient techniques and exercises. First they close their eyes. They let their imaginations run free, to beguile the mind away from its usual cares. Concentration and learning do not thrive in a turbulent mind. Against a background of slow, courtly 18th century music, the students hear French phrases sometimes spoken softly, sometimes loudly. Then they repeat them silently, using "inner speech".

Bancroft first observed the method in Bulgaria where it is widely used, as it is in the Soviet Union, Hungary and other parts of eastern Europe. She has also visited

suggestopedy centres in France, Spain and the U.S.

For many years Communist countries have used various forms of suggestion in their military programs, in brainwashing, and in political "re-training". Today they are trying to use suggestion to find out about past events and the future, for telepathy, to understand the body and its control, as well as to "see" distant parts of the globe.

At Scarborough the students learn as "whole people", says Bancroft, who holds degrees in French literature from Harvard and the Sorbonne.

She explains, "The left hemisphere of the brain is balanced with the right. The mind and the body are one, as they are in yoga exercises. Relaxation promotes undistracted concentration on the one hand and on the other hand a quiet dreamy state where the alpha brain waves are abundant."

A gentle rolling of the head down on the chest and up again stimulates the circulation to the brain. Tense shoulders relax, down from their rigid, coat-hook level up by the ears. Deep exhalations empty the lungs of stale air

and deep inhalations bring fresh oxygen and energy to the cells of the brain and the body. Good breathing, the kind that may seem exaggerated to the uninitiated, is pivotal in the relaxation needed for accelerated learning.

A recent study at Dalhousie University shows that right brain-left brain activities work in alternating cycles. For 90 to 100 minutes, subjects did well on right brain tasks; for a similar length of time they did equally well on left brain tasks. The researchers believe their findings fit current theories that our systems function automatically in alternating active and passive cycles. The yogis have always believed that by changing our breathing patterns we can consciously influence the way our minds work, rebalancing our physiology with our psychology.

The music with its deliberate beat decelerates the mind and slows the pulse. "You can't just use any kind of music. It has to be measured and slow," says Bancroft.

Music balances the right brain with the left, says Dr. Terry Burrows, a family physician and psychotherapist who has worked with students in accelerated learning programs and with clients in his stress management seminars.

"The meditative state slows down the often dominant left hemisphere letting the right become more productive. The right side absorbs in Gestalt and is more able to recognize patterns in material coming in to it," Dr. Burrows says.

Just as there are specific attitudes for the mind and positions for the body in yoga, so there are special tones and cadences for the teacher's voice which, says Bancroft, should be soft and soothing. The heightened awareness of the students makes them intuitively sensitive to the teacher's expression, manner and stance.

"A pact of confidence develops between the student and the teacher. It's the kind of teaching-learning that may, for a student, become a way of life, a philosophy, an art. It brings back the old drill method in a relaxed atmosphere and helps the student learn to concentrate

— a faculty often lacking today," says Bancroft who grew up in an era when concentration was as much a part of growing up as remembering to polish one's shoes and carry a white handkerchief.

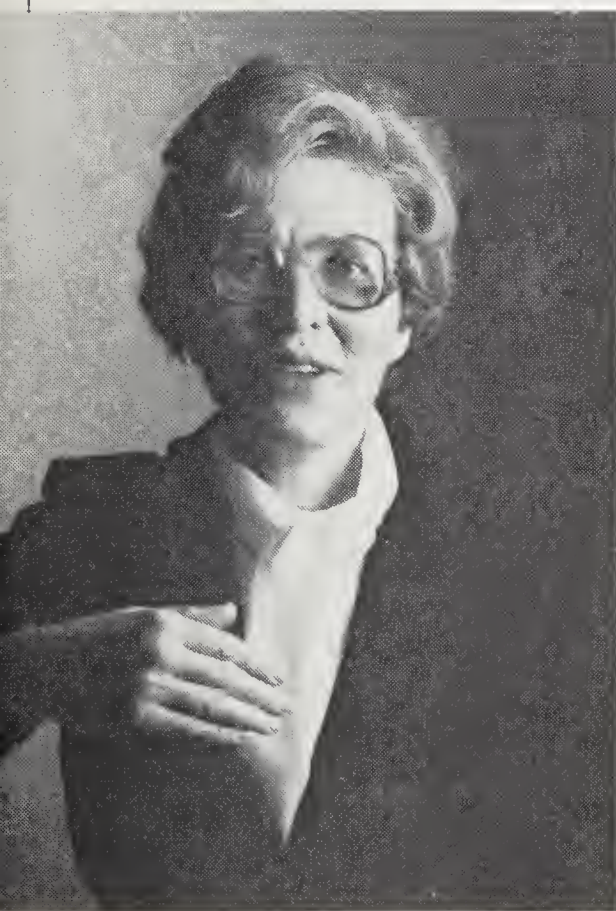
Today many students suffer from stress. They have not been taught how to "centre themselves", she says. Short attention spans are often aggravated by high levels of carbon dioxide in classrooms where windows are sealed. "Both the medical and the teaching professions are aware that there's something wrong with some students' ability to learn, but no one seems to have a remedy," she says.

Accelerated learning, like any new skill, calls for patience and practice. You begin where you are and improve a little at a time. Children (ideally over the age of eight) as well as adults are able to absorb masses of material, recalling it just as easily. Modifications of the method are being applied to the training of many professionals. Some centres make extraordinary claims for the powers of superlearning, but Jane Bancroft is not a sensationalist. But then neither does she underestimate the potential still to be developed in using the brain.

Now one of Bancroft's goals is to learn more about sleep learning as it is practised in the Soviet Union. It is not a process that would disturb the deeper levels of sleep, but an easy transmission of knowledge that takes place just before falling asleep and just before waking up. (Every wise parent understands the importance of the last words a child hears just before sleep takes over.) So far, however, the Russians are reluctant to share their techniques and results.

But with her patience and persistence it is quite likely she will find out what she needs to know about sleep learning. In the meantime both Professors Bancroft and Brodeur give their students keys to open the window to the inner mind as well as to the outer world. ■

Jane Bancroft, Scarborough College.



CHANCELLOR IGNATIEFF RE-ELECTED TO OFFICE



CHANCELLOR GEORGE IGNATIEFF, who has brought to the office his characteristic quiet distinction, was re-elected for a second three-year term by the College of Electors. The College has also elected three alumni to the Governing Council of the University, each for a three-year term.

Burnett M. Thall has been re-elected for a second term and will serve as chairman of the Business Affairs Committee during 1983-84.

Burnett graduated from engineering with a B.A.Sc. in 1945, an M.A.Sc. in 1947 and a Ph.D. in 1950 after winning an Ontario Research Council fellowship in 1948. After a short period as a special lecturer at U of T he joined the *Toronto Star* as consulting engineer in 1947. Since 1968 he has been senior vice-president of Torstar Corporation. He is also a director of Toronto Star Newspapers Ltd.

His community interests include the Atkinson Charitable Foundation, Women's College Hospital, the Ontario Cancer Treatment and Research Foundation, the Ontario Cancer Institute and the Adelaide Court Theatre. During his first term on Council he served on the Business Affairs and Planning and Resources Committees. He is a member of the board of UTLAS — the University of Toronto Library Automation Systems.

Eric Hardy graduated from University College with a B.A. in political science in 1942. Since graduation he has kept in touch with the university and with university affairs through sessional teaching appointments in political science, part-time lecturing in library science and the former Department of Extension and teaching assignments at York and Guelph. He also developed a correspondence training program for municipal officials through Queen's.

Since 1961 he has continued his career as a political economist and management consultant through his own firm, Eric Hardy Associates. He is a fellow of the Institute of Municipal Assessors of Ontario and the Institute of Canadian Bankers and a certified management consultant.

Eric's involvement in alumni affairs began with his election as permanent president of the University College class of 1942 and he was an active planner for



Chancellor George Ignatieff

its 40th reunion in June 1982. His community interests have included the Canadian Welfare Council, the Social Planning Council of Metropolitan Toronto, the United Appeal and the Bureau of Municipal Research of which he is immediate past president. Government appointments have included committees on provincial-municipal affairs, child welfare, taxation, local government, planning and the Children's Aid Society.

Joanne Uyede was also elected to a first term on Governing Council. Her election is particularly welcome since she is the first governor to have graduated from one of the newer arts and science colleges. She earned her B.A. in English language and literature at Innis College in 1969.

Joanne has already served Governing Council as a co-opted alumni member of the Subcommittee on Curriculum and Standards. Her alumni service began at Innis and she is the past president of the Innis College Alumni Association. She was also a member of the search committee for the principal. As a representative of Innis on the directorate of the U of T Alumni Association (UTAA), Joanne was a member of the communications and meeting arrangements committees and

served as chairman of the volunteer recruitment committee for the Council for Advancement and Support of Education (CASE) national conference held in Toronto in 1982. For the past year she has been secretary of UTAA.

Now a full-time housewife, Joanne was previously active with the Ontario Teachers' Federation and held positions in the Department of Admissions and as information officer at York University. Her community interests include the YWCA, the United Way and Allenby Public School which her children attend.

ERINDALE IN PURSUIT OF SCHOLARS

ONE OF THE PROBLEMS FACED BY THE University's newer colleges is the good health of most of their alumni. Older colleges and faculties have substantial scholarships to offer as the result of generations of memorial gifts. Undaunted by current economic conditions and unwilling to take more drastic steps, Erindale College has launched a \$250,000 scholarship campaign directed primarily to its alumni and the Mississauga community. Principal Paul Fox believes it will go a long way toward righting the balance between his college and her older sisters on the St. George campus.

The highlight of the reception marking the opening of the campaign on April 26 was the announcement of a generous lead donation of \$10,000 by Dr. Igor Bolta of the class of 1972. The gift is to fund the Igor Bolta Scholarship for a student in a specialized program in chemistry. The scholarship carries no conditions but Dr. Bolta, a dentist with a substantial Mississauga practice whose interest in research has led him to act as consultant to a number of companies that manufacture dental compounds, hopes that his continuing personal interest in the winners will lead them to an interest in chemistry as it relates to dentistry.

"There are lots of graduates in dentistry," he says, "and lots of graduates in chemistry but it is very rare to find a chemist who understands the special problems arising from the extreme



10:30 a.m. — Homecoming Float Parade
 12 noon — Hart House Luncheon
 2:00 p.m. — Varsity Blues vs Waterloo Warriors
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Luncheon tickets are \$8 per person, \$4 each for children under 12; game tickets are \$3 per person. To order, send your cheque and the address to which tickets should be sent to:

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To be mailed to you, order must be received at Alumni House by September 30. Tickets for orders received after that date will be held for collection October 15 at Hart House. For more information call 978-8990.

environment in the human mouth." Through his work as the Canadian consultant in 3M's international consultant program, Dr. Bolta has become aware at first hand of the problems such companies face when they are seeking a "dental chemist". He has already been in touch with a number of manufacturers and dental organizations who he believes will be willing to offer summer employment or internship to Bolta scholars.

What motivates a member of one of the classes that most North American fund raisers refer to as "the deadly decade" to buck the trend shown by his contemporaries? Dr. Bolta suggests he has been the victim of a gentle conspiracy. Gerry Townsend, a government appointee to Governing Council who lives in Mississauga, is a patient and friend who reintroduced him to Erindale. Principal Fox and director of campus relations Tennys Reid "pointed out the need and the opportunities but never pushed." But much of the credit must go to former Erindale principal Tuzo Wilson who "always took time to know his students and to invite us to the principal's house and make us feel at home." With that kind of undergraduate experience it's not too hard to see why Dr. Bolta feels he wants to return something to a college that gave



Dr. Igor Bolta

him much.

Honorary chairman of the scholarship campaign is Mayor Hazel McCallion of Mississauga. David Doncaster, managing partner at Clarkson, Gordon in Mississauga, is campaign chairman. Igor Bolta is now chairman of the Principal's Club (for donors of \$500 or more). Erindale alumni are warned they had better have their cheque books ready when this high-powered team comes calling.

UTAA ANNUAL MEETING

THE ANNUAL MEETING OF THE UNIVERSITY of Toronto Alumni Association was held in Hart House on May 17. An enthusiastic crowd was on hand to hear the featured speaker, Professor Desmond Morton, winner of this year's alumni-faculty award. Another welcome guest was Malim Harding, new chairman of the Varsity Fund, who outlined his hopes for next year — a significant increase in inflation-adjusted dollars which will permit the University to overcome at least some of the difficulties arising from more than 10 years of underfunding. Doug Todgham, newly appointed associate director of private funding, was also on hand.

The UTAA slate of officers and committee chairmen for 1983-84 was presented by James Joyce, chairman of the nominating committee which also included Annabel Sissons, Doug Appleton and Bob Crowe. The following were elected unanimously: past president, Edward Kerwin, St. Mike's 1968; president, Joan Johnston, St. Mike's 1968; vice-president (planning), Ruth Davis, Meds 1951; vice-president (University governance), Joseph Potts, U.C. 1949; vice-president (fund raising), Ted Wilson, Forestry 1959; treasurer, Annita Wilson, U.C. 1952; assistant treasurer, Douglas Leeies, Erindale 1971; secretary, Anne Corbett, Law 1979; president elect and assistant secretary, George Edmonds, Vic 1948.

BEST WISHES ALL ROUND

AT ITS JUNE MEETING, THE GOVERNING Council's Committee on Campus and Community Affairs paid tribute to Nelson Earl who retired from the Department of Private Funding on June 30. Nelson has been an unfailing source of sympathetic support for all alumni who have worked in or for the various Varsity Fund and Update campaigns. He will take with him the gratitude and affection of the alumni community.

In the new position of associate director of private funding with special responsibility for the Varsity Fund is L. Douglas Todgham, former director of the Media Centre. Doug is no stranger to the University's fundraising programs. He was seconded to the President's Office in 1977 to assist with planning for the Update campaign and establishment of the new Department of Private Funding.

He is an alumnus of Trinity College (English and history 1966) and also of

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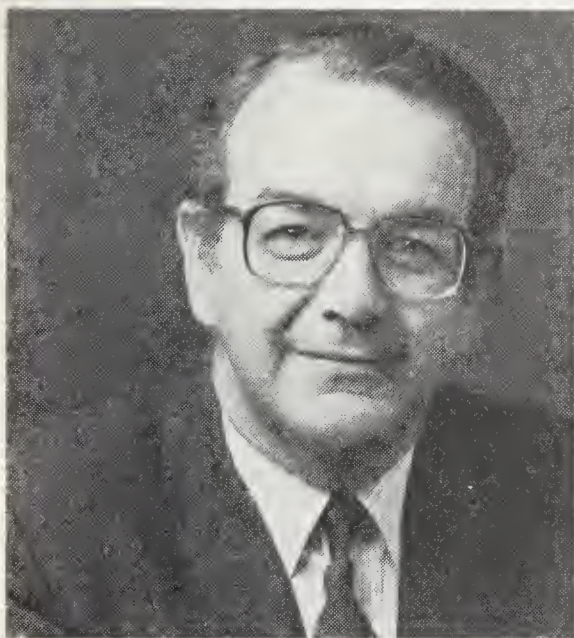
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L. Douglas Todgham

Syracuse University where he earned his master's in broadcasting and communications in 1967. He also studied at the Institute for the Study of the Economics of Education at the University of Dijon and the business school at Western.

ARE THEY BLUE?

THE MEMBERS OF THIS YEAR'S CONVOCA-tion processionalists who were decked out in brilliant blue were not, as someone speculated, advance men for a certain baseball team. They were the alumni governors christening their new mortar boards and gowns. The UTAA generously agreed to fund special academic dress for alumni governors during their terms of office. The distinctive result is a satin academic gown with velvet facings in U of T blue. It is worn without an academic hood. A more elaborate version of the governors' gowns was presented last fall to Governing Council chairman John Whitten. Facings of that gown are re-embroidered in white.

STILL BIGGER AND BETTER

THIS YEAR'S SPRING REUNION, HELD THE first weekend in June, was by all accounts the best yet. More than a thousand members of the reunion classes of 1923, 1933, 1943 and 1958 attended the President's Garden Party to say good-bye to retiring President James Ham and his wife Mary. The happy/sad occasion was marked by a special presentation to Jim by the Blue and White Alumni Band. They gave him a ceremonial drumstick, banded in brass with the inscription 1978-1983 to mark his five years as their honorary drummer.

Another highlight of Spring Reunion was the impromptu reminiscences with which Helen Delaporte of the Class of 1913 entertained the reunion dinner at University College. Reminding her listeners of some of the ridiculous restrictions the University once placed on its women students, she proved that, like good wine, the best alumni always improve with age. Miss Delaporte, who still retains an active interest in her pioneering clinic for children with reading and other learning problems, has been the moving spirit behind the annual reunion of this remarkable class for as long as most of us can remember. Once a year they arrive with a corsage for each woman attending and a boutonniere for each man. Scorning institutional amenities, they also provide a floral centrepiece and silver candelabra for their special table.



THE GIFT OF TIME

MAY 17 WAS THE ANNUAL MEETING AND recognition day for senior alumni volunteers participating in the Senior Alumni Association's Alumni Talent Unlimited program. No one is quite certain how much these 176 dedicated volunteers have saved the University through their service in alumni records, the library, campus tours and various departments and faculties but estimates range as high as half a million dollars. Award certificates were presented by Chancellor George Ignatieff who told the volunteers they typified the finest type of alumni support.

The excellent turnout in West Hall of University College elected the following slate for 1983-84: chairman, Gordon Romans who is also an alumni member of Governing Council; vice-chairmen, Douglas Kingsbury and Robert Saunders; treasurer, Harold G. Aggett; assistant treasurers, Marion Kay and Florence Blackwell; members-at-large, H.R. Burton and Mary Coburn. Most positions are "twinned" because members believe in creative retirement and are enthusiastic world travellers.

And speaking of creative retirement, that was the subject of a presentation by Mary and Hiles Carter of the Senior Alumni Association when they conducted a pre-retirement session at the University of Guelph in April. Twenty-five soon-to-be-retired members of the Guelph staff attended and the university is already planning its own senior alumni association.

Part-time master's program

The School of Graduate Studies will continue to offer late afternoon and evening courses. Most departments in the humanities, social sciences and physical sciences have students registered part-time in a program of study leading to a master's degree. The following departments have late afternoon and evening offerings for the 1983-84 academic year:

Division I — Humanities (drama, English, French, Germanic languages and literatures, history, history of art, Italian, linguistics, philosophy, religious studies, Slavic languages and literatures)

Division II — Social Sciences (criminology, economics, education, industrial relations, management studies, political science, sociology)

Division III — Physical Sciences (chemical engineering and applied chemistry, civil engineering, computer science, electrical engineering, geology, industrial engineering, mathematics and applied mathematics, mechanical engineering, metallurgy and materials science, statistics, welding engineering)

If you are interested in other areas of study, please contact the school. However, disciplines requiring extensive laboratory work are not presently able to accommodate students wishing to study part-time in the evening.

All general and departmental admission requirements apply. Those interested in following a program of study leading to a master's degree are urged to get in touch with the school as soon as possible and to check with the particular department in which they wish to study to ensure that courses are available.

For more information, including deadlines for receipt of applications, please call the enquiry desk at the School of Graduate Studies, 978-6614.

THE WEATHER, THE METROPOLIS & YOUNG OPERA SINGERS

LECTURES

Quebec, Canada and the United States.

Thursday, Sept. 29.

Thursday, Nov. 10.

Prof. Alfred O. Hero, Jr., Claude T. Bissell visiting professor of Canadian-American relations; first two in series of four. George Ignatieff Theatre, Trinity College, Devonshire Place. 8 p.m.
Information: Centre for International Studies, 978-3350.

National Universities Week.

UTAA and School of Continuing Studies lunch-hour series with winners of Alumni-Faculty Award.

The Weather.

Monday, Oct. 3.

Prof. F.K. Hare, Trinity College.

Canadian Federalism.

Tuesday, Oct. 4.

Prof. Stefan Dupré, Department of Political Science.

War and Peace in Space.

Wednesday, Oct. 5.

Prof. J.C. Polanyi, Department of Chemistry.

Medical Implications of Genetic Engineering.

Thursday, Oct. 6.

Prof. Louis Siminovitch, Department of Medical Genetics.

Debates Room, Hart House. 12.30 to 1.30 p.m. 40-minute talk followed by discussion. Bring your lunch or buy it at Hart House.

Information: Department of Alumni Affairs, 978-8991.

Work in American Culture and Society.

Wednesday, Oct. 5.

Prof. Irving Howe, City University of New York; Snider visiting lecturer, Erindale College. Council Chamber, South Building. 8 p.m.

Information and reservations, 828-5214.

The Training of Young Opera Singers.

Thursday, Oct. 6.

Lotfi Mansouri, Canadian Opera Company. Walter Hall, Edward Johnson Building. 2.10 p.m.

Information, 978-3751.

Encounters between Science and Faith.

Wiegand Foundation 1984 series, first lecture:

An Oriental Perspective.

Wednesday, Oct. 12.

Prof. Seyyed Hossein Nasr, visiting from Temple University. Auditorium, Medical Sciences Building. 8 p.m.
Information: Faculty of Arts & Science, 978-3389.

German and European Studies.

Thursday, Oct. 13.

Prof. Michael Stürmer, visiting professor of German & European studies, first of two public lectures. George

Canadian Perspectives, Fall 1983

Lecture-discussion series for senior alumni and friends will be held Mondays, Sept. 26 to Nov. 28 from 1.30 to 3.30 p.m. in the media room (179) of University College on the St. George campus and on Thursdays, Oct. 6 to Dec. 1 from 9.30 a.m. to 12 noon at Scarborough College.

Topics for the Monday afternoon sessions at U.C. will be: Thomas Hardy, the importance of universities, sleep and its problems, myths and legends, urban landscape architecture, the joy of theatre — cultivating audiences, consumer economics for the '80s, music education, literature behind the Iron Curtain.

Topics for the Thursday morning sessions at Scarborough will be: the role of the U of T in Ontario, hydrogen research, computer science, gerontology, life in the Kalahari Desert, linguistic multiculturalism, physiology of the brain, Canadian theatre, mineralogy.

Registration fee, which includes one luncheon, is \$21 per person for each series. Early registration is advisable since enrolment is limited and places are filled quickly.

Information and registration: Department of Alumni Affairs, 47 Willcocks St.; (416) 978-2367.

Ignatieff Theatre, Trinity College, Devonshire Place. 8 p.m.

Information: Centre for International Studies, 978-3350.

The Politics of the Spirit.

Tuesday, Oct. 18. to Thursday, Oct. 20.

Prof. Em. Kenneth Boulding, University of Colorado, will give the Larkin-Stuart lectures:

The Life of the Spirit as an Evolutionary Phylum (Tuesday);

The Impact of the Life of the Spirit on the Evolution of Human Society (Wednesday);

The Impact of the Life of the Spirit on Political Life (Thursday).

George Ignatieff Theatre, Trinity College, Devonshire Place. 8 p.m.

Information: Office of Convocation, Trinity College, 978-2651.

St. Augustine.

Wednesday, Nov. 2.

Prof. Joanne Dewart, St. Michael's College; in honour of Prof. G.L. Keyes. Alumni Hall, Victoria College. 8 p.m.

Information, 978-3813.

The Social Construction of Women's Biology.

Wednesday, Nov. 2.

Prof. Ruth Hubbard, Harvard University; 1983 Jacob Bronowski memorial lecture. Wetmore Hall, New College, Classic Ave. 8 p.m.

Information: Principal's Office, New College, 978-4118.

Heart Attack Prevention: Rationale and Strategy for Community Change in Eating Patterns.

Thursday, Nov. 3.

Prof. Henry Blackburn, University of Minnesota; 10th annual Edna W. Park lecture, Household Science Alumni Association. Auditorium, Medical Sciences Building. 8 p.m.

Information: Department of Nutritional Sciences, 978-5425.

Your Financial Planning — Further Thoughts for the 80s.

Thursdays, Nov. 3, 10 and 17.

Annual series sponsored by Associates of Erindale. Topics and speakers: Current economic climates, Prof. John Crispo, Faculty of Management Studies;

Appropriate investment portfolios,

Prof. Eric Kirzner, University of Waterloo;
Tax effectiveness in financial planning, Paul Alliston, Touche Ross & Co., Toronto.
Council Chamber, South Building, Erindale College. 7.30 p.m.
Tickets series \$15, single (available after Oct. 18) \$6.
Information, 828-5214.

Alexander Lectures.

Monday, Nov. 7 to Thursday, Nov. 10.
Prof. Anne Barton, New College, Oxford. West Hall, University College. 4.30 p.m.
Information: Principal's Office, University College, 978-3160.

Martin Luther as an Ecumenical Challenge.

Friday, Nov. 25.
Prof. Hans Küng, University of Tübingen, West Germany. Meeting Place, Scarborough College. 8.15 p.m.
Information, 284-3243.

CONFERENCE

The Metropolis: A Conference in Honour of Hans Blumenfeld.

Friday, Nov. 4 and Saturday, Nov. 5.
Two-day conference, arranged by Department of Geography and Centre for Urban & Community Studies with assistance from CMHC, Ontario Ministry of Municipal Affairs & Housing, Metropolitan Toronto and City of Toronto, to mark the contributions of Prof. Blumenfeld whose distinguished professional life in architecture, urban design and planning spans five countries and more than six decades. The topics for the four sessions reflect

the types of issues he has addressed most frequently in North America: the changing metropolis; transportation; housing; the liveable urban environment.
Speakers and discussants include leading scholars and practitioners from both the public and private sectors in Canada and the U.S. Prof. Blumenfeld will be the speaker for the summing up. Registration fee \$35 includes Friday luncheon and reception; student fee \$5 not including luncheon and reception. Deadline for registration is Oct. 31.
Information: Centre for Urban & Community Studies, 978-4478.

CONCERTS

ROYAL CONSERVATORY OF MUSIC

Art Gallery Sunday Series.

Oct. 9.
Colin Tilney, harpsichord. First of 1983-84 series continued through support of the Gannett Foundation and Mediacom Industries Ltd. Walker Court, Art Gallery of Ontario. 3 p.m.

Twilight Series.

Thursday, Oct. 20.
Alexandra Browning, soprano; Rhoda Green, piano.
Thursday, Nov. 3.
Avrahm Galper, clarinet, and friends. Concert Hall. 5.15 p.m. Tickets \$2, students and senior citizens \$1.

Royal Conservatory Orchestra Series.

Friday, Oct. 28.
Guest Conductor, Raffi Armenian.
Friday, Nov. 18.
Masterworks from the small ensemble repertory with guest artists. First two of nine concerts, Church of the Redeemer, Bloor and Avenue Road. 8 p.m. Series subscriptions \$22.50, \$35 and \$47.50; students, senior citizens and handicapped \$15, \$25 and \$37.50; single tickets \$4.50, \$7 and \$9.50; students, senior citizens and handicapped \$3.50, \$5 and \$6.50. Box office, 978-5470.

Information on all Conservatory concerts available from publicity office, 978-3771.

FACULTY OF MUSIC EDWARD JOHNSON BUILDING Festival Rameau.

Friday, Oct. 14.
One of two events at faculty in festival in honour of Jean-Philippe Rameau, French composer and theorist. Walter Hall. 8 p.m.

U of T Symphony Orchestra.

Saturday, Oct. 22.
Conductor Otto Werner Mueller.

MacMillan Theatre. 8 p.m. Tickets \$5, students and senior citizens \$3.

U of T Wind Symphony.

Sunday, Oct. 23.
MacMillan Theatre. 3 p.m.

Faculty Artists Series.

Saturday, Oct. 29.
Saturday, Nov. 12.
First two in series planned and performed by the faculty's artists; solo and ensemble works in a variety of musical styles in each program.
Walter Hall. 8 p.m. Tickets \$9, students and senior citizens \$5.

U of T Concert Choir.

Sunday, Nov. 13.
Conductor William Wright. Walter Hall. 3 p.m.

Music of Alexander Goehr.

Tuesday, Nov. 15.
Walter Hall. 8 p.m.

University Singers.

Wednesday, Nov. 16.
Conductor Diana Brault. Walter Hall. 8 p.m.

U of T Brass Choir.

Sunday, Nov. 20.
Conductor Stephen Chenette. Walter Hall. 3 p.m.
Information on all concerts in Edward Johnson Building available from box office, 978-3744.

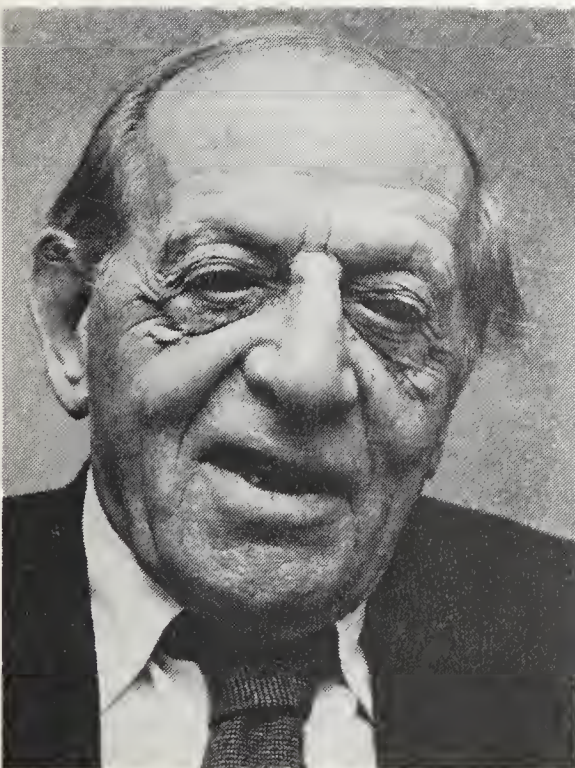
PLAYS & OPERA

Glen Morris Studio Theatre.

September to April.
Graduate Centre for Study of Drama will present seven productions in its 1984 studio season: classics, new plays, musical, comedies and tragedies. Each will play eight performances, Thursday to Sunday first week, Wednesday to Saturday second week, at 8 p.m. Season subscription \$17.50, students and senior citizens \$10.50; single \$3, students and senior citizens \$2.
Information, 978-8668.

Scarborough College.

September to February.
Seven productions by students in the drama department have been scheduled and others will be announced. Thursdays to Saturdays, TV Studio 1,



Professor Hans Blumenfeld

Listings were those available at press time. Readers are advised to check with the information telephone numbers given in case of changes. Letters should be addressed to the department concerned, University of Toronto, Toronto, M5S 1A1, unless otherwise indicated.

at 8 p.m. unless otherwise noted.
Information, 284-3126.

Hart House Theatre.

Oct. 5 to 8 and 12 to 15.

"Twelfth Night" by Shakespeare.

Nov. 16 to 19 and 23 to 26.

"The Good Person of Szechwan" by Brecht.

First two of four plays, Graduate Centre for Study of Drama 1984 season; future productions, "Terror" by Ken Gass and "The Importance of Being Earnest" by Oscar Wilde. Performances at 8 p.m. Season subscription \$24, students and senior citizens \$12; single \$7, students and senior citizens \$3.50.

Information, 978-8668.

MacMillan Theatre.

Oct. 15.

"Pygmalion." Opera, part of Festival Rameau. 8 p.m. Tickets orchestra \$14, balcony \$12.

Box office, 366-7723.

Nov. 25, 27 and 29, Dec. 1 and 3.

"Maria Egiziaca" by Respighi.

"Prima Donna" by Benjamin.

First productions by Opera Division, Faculty of Music, 1984 season. Performances at 8 p.m. except Sunday, Nov. 27 at 2.30 p.m. Tickets \$8, students and senior citizens \$5.

Information, 978-3744.

U.C. Playhouse.

Nov. 17.

"Directors' Shorts" by students in U.C. drama program directors' course; intermission at U.C. Union with Ken Gass who teaches course, student directors and cast. First of two evenings with

staff and students of program.

7.30 p.m.

Ticket price to be confirmed.

Information, 978-6930.

EXHIBITIONS

Robarts Library.

Sept. 6 to Oct. 21.

Frederic Chopin: His Life and Times.

Oct. 29 to Dec. 23.

The D.P. Experience: Ukrainian Refugees after World War II.

Erindale College.

Sept. 17 to Oct. 7.

Pierette Mondou, installation.

Oct. 10 to 30.

Arnie Brownstone, paintings.

Nov. 2 to 22.

Elton Yerex, paintings.

Gallery hours: Monday-Wednesday and Friday-Sunday, 1 to 7 p.m.; Thursday, 1 to 9 p.m.

University College.

Oct. 11 to 14.

C.W. Jefferys' water colours, drawings and caricatures; special exhibition from Archives of Canada and U of T Archives marking unveiling of commemorative plaque on King's College Circle. Room 240 (Senate Chamber).

SPORTS

Football.

Thursday, Oct. 6.

Blues vs York. Pre-game and half-time entertainment will include cheerleading contest and challenge between York and U of T students. 7.30 p.m.

Saturday, Oct. 15.

Blues vs Waterloo. Homecoming game. 2 p.m.

Varsity Stadium. Tickets \$5 and \$4.

Hockey.

Friday, Oct. 14 and Saturday, Oct. 15.

U of T invitational tournament. 6 to 9 p.m. both days.

Wednesday, Nov. 9.

Blues vs Waterloo.

Sunday, Nov. 13.

Blues vs R.M.C.

Friday, Nov. 18.

Blues vs Windsor.

Wednesday, Nov. 30.

Blues vs Guelph.

Varsity Arena. 7.30 p.m. Tickets \$5 and \$4.

Other intercollegiate schedules include rugby, soccer and basketball.

Information and ticket prices: Department of Athletics & Recreation, 978-4112.

MISCELLANY

Bridge.

Tuesdays from Sept. 27.

Rubber bridge for fun and/or instruction for all members of Hart House.

Debates Room. 6.30 p.m.

Woodsworth College Alumni Association.

Open House.

Wednesday, Oct. 12.

Woodsworth College lounge. 5 to 7 p.m.

Telethon.

Monday, Oct. 17 to Thursday, Oct. 20.

Reception/supper, 5 to 7 p.m.;

telephones 7 to 9 p.m.

Information: Woodsworth College, 978-5340; evenings and week-ends, Margaret Toth, 421-7051.

Homecoming Breakfast.

Saturday, Oct. 15.

T-Holders Quarterback Club breakfast, Hart House, 10 to 11.30 a.m.

Information: Department of Athletics & Recreation, 978-4113.

Poetry Reading.

Wednesday, Oct. 19.

Readings by Victoria College faculty members in honour of Prof. Millar MacLure. Alumni Hall, Victoria College. 8 p.m.

Information, 978-3813.

Open House.

Wednesday, Oct. 26.

Victoria Women's Association, student tours of the college. Wymilwood, 150 Charles St. W. 7 p.m.

Trinity College Book Sale.

Wednesday, Oct. 26 to Friday, Oct. 28.

Friends of the Library. Seeley Hall. Wednesday, 7 to 10 p.m.; Thursday,

Health, Exercise and Fun

The HEFL — health, exercise and fun in your lifestyle — program offered to senior alumni and friends will be held Fridays, Sept. 30 to Dec. 2. The classes, designed to improve participants' overall fitness, will be held from 10 to 11 a.m. in the Warren Stevens Building of the Athletic Centre. Medical approval, for which a form will be sent on application, is essential. You will also be asked to complete a one-page medical information form.

Membership in the Athletic Centre is free for those 65 years of age and older. Registration fee for the 10 HEFL sessions is \$25 per person. Enrolment is limited and those interested are asked to register as soon as possible.

Information and registration: Department of Alumni Affairs, 47 Willcocks St.; (416) 978-2367.

Preparation for Retirement Living

This course is designed to give those about to retire suggestions for making the most of their later years. Seven lectures will be given on Tuesday evenings from Oct. 18 to Nov. 29 at 162 St. George St. Topics to be discussed will include financial management, the law, health, housing, community resources and the pleasure of leisure.

Sponsored by the Senior Alumni Committee and Department of Alumni Affairs, the course is open to all who might find it useful. Fee is \$20 per person. Since enrolment is limited, early registration is advised.

Information and registration: Department of Alumni Affairs, 47 Willcocks St.; (416) 978-2367.

11 a.m. to 9 p.m.; Friday, 11 a.m. to 3 p.m. Opening night admission \$1. Information and book collection, 978-2651.

University College Book Sale.
Wednesday, Nov. 2 to Friday, Nov. 4. Proceeds to college. West Hall. Wednesday, 7 to 10 p.m.; Thursday, 11 a.m. to 6 p.m.; Friday, 10 a.m. to 1 p.m. Information and book collection, 978-6930.

Convocation.
Wednesday, Nov. 23.
Thursday, Nov. 24.
Friday, Nov. 25.
Convocation Hall. 8.15 p.m.

O.I.S.E. Alumni Association.
Monday, Nov. 28.
Annual meeting, to be followed by Fellows Night. Second floor lounge, Ontario Institute for Studies in Education. 5 p.m. Tickets \$15 from Public Communications Office, O.I.S.E., 252 Bloor St. W., Toronto, M5S 1V6; cheques payable to O.I.S.E. Alumni Association. Information, 923-6641, Ex. 374.

Donald F. Forster Memorial Fund

University of Toronto

The University of Toronto is establishing the Donald F. Forster Memorial Fund, University of Toronto to honour our president designate who died less than one month before he was to take office.

The fund will perpetuate Professor Forster's belief that universities have a mandate to civilize and to produce graduates who are responsible, intellectually adaptable and unafraid to criticize.

A distinguished graduate of University College and president of the University of Guelph for the past eight years, he was to have returned to his alma mater as president in September.

The memorial fund has grown out of the "Paint the Town Blue" evening, which was planned to honour Professor Forster. The dinner has been cancelled and ticket holders have been asked to support the memorial fund.

Contributions may be mailed to the Donald F. Forster Memorial Fund, University of Toronto, Toronto, Ontario M5S 1A1 or telephone (416) 978-2171 for additional information.

CRYPTIC CROSSWORD/BY CHRIS JOHNSON

THE GRADUATE TEST NO. 22

THE WINNER OF THE Graduate Test No. 20 in the March/April issue was Patricia Belt of Sunderland, Ont. A copy of "And Some Brought Flowers" Plants in a New World has been sent to her.

Winner of Test No. 21 in the May/June issue was Edna Tadmor of Jerusalem who has been sent a copy of *George Heriot: Postmaster Painter of the Canadas*.

For Test No. 22 the University of Toronto Press has generously provided *Karsh: A Fifty-Year Retrospective* by Yousuf Karsh. There are 186 photographs in this book, 12 in colour. Entries must be postmarked on or before Oct. 31. The solution will be in the next issue; the winner in Jan./Feb.

Address entries to: The Graduate Test, Department of Information Services, University of Toronto, Toronto M5S 1A1. And please don't forget to include your name and address.

ACROSS

1. A person's marionette returns without softly achieving the next rung (3,4,2)
6. I am a page following chapter primate (5)
9. Plain girl who taught in Siam after state's retrogression (7)

Solution to The Graduate Test No. 21

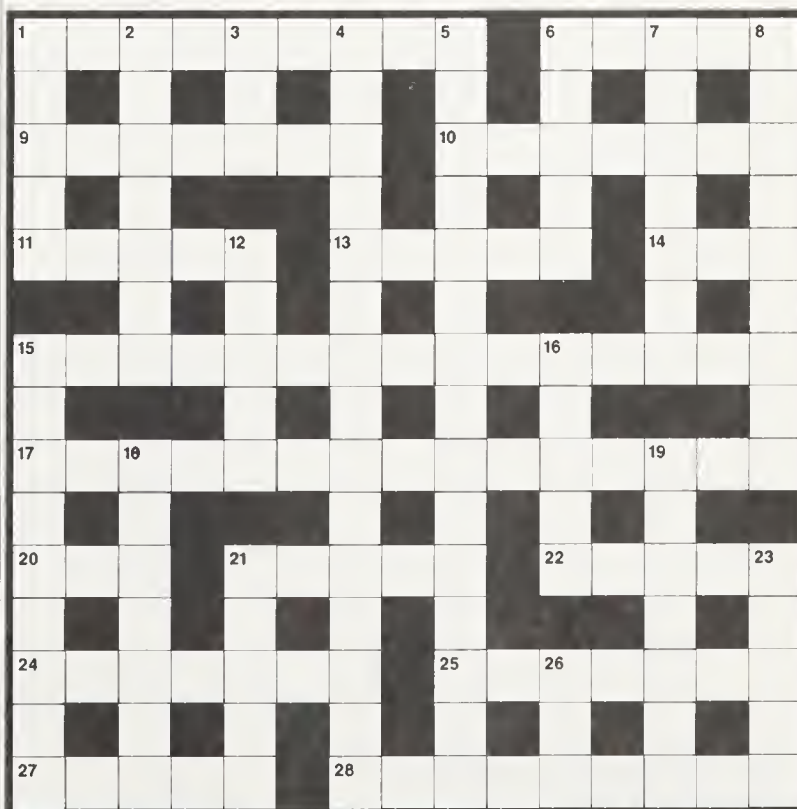
F	A	C	E	T	P	L	U	G	O	P	A	L		
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T	O	N	N	E	A	U	T	P						
E	T	S	N	A	U	T	P							
C	A	L	E	N	D	A	R		D	I	A	R	Y	
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T	H	R	A	R	G	U	U							
S	A	Y	S	T	A	Y		E	L	L	E	N		

10. Learned to die: true disclosure (7)
11. A loose woman returns to town (5)
13. Sound from piano is exquisite (5)
14. A peeper volume is unfinished (3)
15. Not given to much reflection, so Philip Calhoun raved (15)
17. One leaves coach's mother or father with heartless nerveless clarity (15)
20. No Russian loses a second after expenses (3)
21. Deprived by loss of French leader's hat (5)
22. Jeanne d'Arc, for example, about to come back as guide (5)
24. Under limitless belief in tub (7)
25. Applause for current contention (7)
27. Dodge advertisement in the day before (5)
28. Month of speech for small territory's municipal office (9)

DOWN

1. Assault on group (5)
2. Surround first half of messengers to raise mast (7)

3. Can the East Indies contain it? (3)
4. Mountain climbing to the extent that Basque leader is taken in and a radio operator reaches a battlefield (6,2,7)
5. Ambassador-general to hold one powerful one (15)
6. Ground a hundred gold points (5)
7. Unconscious one returning to one cult leader is very silly (7)
8. Page wanders around last of the introductions (9)
12. Wrong a young lady (5)
15. Cannot hold a number that cannot be held (9)
16. Is strongly averse to alien getting up in middle of chase (5)
18. Aerial stake pole not applicable (7)
19. It's in your head — let heart cry about bachelor (7)
21. Unimpressed by number in foundation (5)
23. Very strange of me to produce a card game (5)
26. Accountant has right vehicle (3)



Special Group Discount Offer on THE NEW BRITANNICA 3... a Complete Home Learning Centre



An important announcement for Members of the Alumni Association

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Pitseolak Presents "Summer Hunters"



E

World renowned Eskimo artist, Pitseolak, photographed with her latest work at Cape Dorset, Northwest Territories, is one of seven famous Canadian artists whose work is now available in a special edition for only \$19.95.

An exclusive arrangement between the West Baffin Eskimo Cooperative and the Mintmark Press enables you for the first time to have the work of a famous Eskimo artist at a popular price.

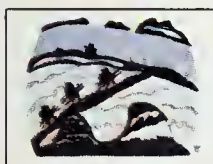
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These works are not available in any other form. The Mintmark Edition is the only edition. Each print comes to you with Mintmark Press's guarantee: if not completely delighted with your acquisition, your money will be cheerfully refunded (excluding shipping & handling).

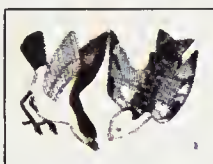
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A Kenojuak



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F Lucy



G Jamasie



H Eegyvudluk



I Lucy



This mark, which appears on each print along with the stonecutter's "chop" mark and the artist's own symbol, is the official emblem of the West Baffin Eskimo Cooperative, Cape Dorset, northwest Territories.



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Cheque or money order to Alumni Media enclosed:

Charge to my Master Charge, Visa or American Express Account No.

Name

Street

Apt.

Expiry Date:

City

Prov.

P. Code

Signature

Alumni Media, 124 Ava Rd., Toronto, Ontario M6C 1W1

Carrington: Aged to Perfection.



Only time can make a whisky this smooth and mellow.
Only you can appreciate it.

Carrington Canadian Whisky